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## THE SPLEEN RATE AS A MEASURE OF MALARIA PREVALENCE IN THE UNITED STATES

By C. P. COOGLE, *Acting Assistant Surgeon, United States Public Health Service*

In previous publications, (1), (2), (3), (4), (5), (6), (7), the results of spleen examination of school children in the malarious districts of the United States have been reported. This work has been continued upon sample populations living in areas where malaria transmission was suspected or known to occur, with a view to obtaining a general idea of the spleen rates as compared with the blood rates in this country.

### TECHNIQUE

This series of examinations included both boys and girls attending the rural schools ranging in age from 5 to 20 years. A comparatively small number were over the age of 15.

The spleen examinations were made with the subject standing. The clothing was loosened to a degree sufficient to allow the examiner to place the palpating hand next to the skin in the left subcostal region. The child was encouraged to relax the abdominal muscles by leaning forward slightly and breathing deeply. If difficulty was experienced in individual cases the child was reexamined lying down. Only those spleens were recorded as enlarged which could be felt definitely and unmistakably descending with inspiration. These spleens were demonstrated to the county health officer or the teacher. The spleen rate obtained, therefore, represents a minimum rate such as would be found by any physician who had had ordinary training in physical diagnosis. No tabulation has been made of spleens according to size, since the numbers were too small to render such data of value.

The blood examinations were made by the thick-smear method. All specimens were shipped to the Memphis laboratory, where they were stained and examined by Miss Ethel Barrier and Miss Retha Kitchens, working under the direction of Acting Assistant Surgeon William Krauss. The blood rates, therefore, have the advantage of a uniform technique and a constant personality factor.

### RESULTS

The results of these examinations are presented in the following tables:

## ARKANSAS

*Rice-field district near Stuttgart*

County and school	Race	History			Spleen			Blood			Date, 1923
		Number exam- ined	Num- ber posi- tive	Per cent posi- tive	Num- ber exam- ined	Num- ber posi- tive	Per cent posi- tive	Num- ber exam- ined	Num- ber posi- tive	Per cent posi- tive	
Humphrey .....	W	133	37	27.8	52	10	19.2	133	13	9.8	November.
Do. ....	C	67	23	34.4	40	4	10.0	67	9	13.4	Do.
Gill .....	W	36	35	97.2	18	6	33.3	36	6	16.7	Do.
Alcorn .....	W	50	15	30.0	21	6	28.6	42	4	9.5	Do.
Casco .....	W	48	21	43.8	20	6	30.0	48	15	31.3	Do.
Stabley .....	W	19	2	10.5	19	1	5.3	18	1	5.6	Do.
Stucky .....	W	29	2	6.9	15	0	0	29	0	0	Do.
Sunshine .....	W	19	0	0	19	3	15.8	19	0	0	Do.
Shannon .....	W	25	1	4.0	10	1	10.0	25	1	4.0	Do.
Goldman .....	W	27	2	7.4	14	2	14.3	27	1	3.7	Do.
Total .....		453	138	30.5	228	33	14.5	444	50	11.3	

## CHATHAM COUNTY, GA.

*White schools*

School	History			Spleen			Blood			Date, 1924
	Number exam- ined	Num- ber posi- tive	Per cent posi- tive	Number exam- ined	Num- ber posi- tive	Per cent posi- tive	Number exam- ined	Num- ber posi- tive	Per cent posi- tive	
Bethel .....	31	1	3.2	30	0	0	11	1	9.0	January.
South Newington .....	16	2	12.6	16	1	6.2	16	1	6.2	Do.
Bloomington .....	34	3	8.8	34	0	0	34	2	5.9	Do.
Pooler .....	82	17	20.7	82	0	0	82	5	6.1	Do.
Port Wentworth .....	132	3	2.2	132	3	2.2	132	7	5.3	Do.
Thunderbolt .....	59	3	5.1	59	0	0	59	4	6.8	Do.
Montgomery .....	64	2	3.1	64	0	0	64	1	1.5	Do.
White Bluff .....	16	0	0	16	0	0	16	0	0	Do.
Isle of Hope .....	51	5	9.8	51	0	0	51	6	11.8	Do.
Total .....	485	36	7.4	484	4	.8	465	27	5.8	

*Colored schools*

Burroughs .....	47	3	6.4	47	0	0	47	1	2.1	January.
Fort Argyle .....	41	1	2.4	41	0	0	41	1	2.4	Do.
Rose Dhu .....	78	5	6.4	78	0	0	78	2	2.6	February.
Flowerville .....	21	1	4.7	21	0	0	20	0	0	Do.
Tatumville .....	36	0	0	36	0	0	36	0	0	Do.
Woodville .....	231	46	19.9	231	1	0.4	230	4	1.7	Do.
Port Wentworth .....	34	6	1.8	34	1	2.9	33	1	3.0	Do.
Mentleth .....	30	2	6.6	30	0	0	30	1	3.3	Do.
Rice-Hope .....	33	4	1.2	33	0	0	33	2	6.0	Do.
Sandfly .....	71	8	1.1	71	0	0	71	4	5.6	Do.
Thunderbolt .....	44	4	9.1	44	0	0	44	2	4.5	Do.
Bloomington .....	19	0	0	19	0	0	19	0	0	Do.
Antioch .....	14	0	0	14	0	0	14	1	7.1	Do.
Mount Zion .....	13	1	7.7	13	0	0	13	0	0	Do.
Oakland .....	11	4	36.0	11	0	0	11	0	0	Do.
Springfield .....	22	1	4.5	22	0	0	22	0	0	Do.
Dittmersville .....	19	2	1.0	19	0	0	19	0	0	Do.
East Savannah .....	58	15	25.8	58	0	0	58	0	0	Do.
Sackville .....	18	2	1.1	18	0	0	18	0	0	Do.
White Bluff .....	9	2	22.4	9	0	0	9	0	0	Do.
Beaulieu .....	14	0	0	14	0	0	14	0	0	Do.
Barston .....	6	1	16.6	6	0	0	6	0	0	Do.
Whitmarsh .....	6	0	0	6	0	0	6	0	0	Do.
Wilmington .....	4	1	25.0	4	0	0	4	0	0	Do.
Total .....	879	109	12.4	879	2	.2	876	19	2.2	

## SOUTH CAROLINA

County and school	Race	History			Spleen			Blood			Date, 1924
		Number exam- ined	Number posi- tive	Per- cent posi- tive	Number exam- ined	Number posi- tive	Per- cent posi- tive	Number exam- ined	Number posi- tive	Per- cent posi- tive	
Charleston:											
Meggoets.....	W	44	1	2.3	44	2	4.5	44	0	0	January
Johns Island.....	W	10	0	0	10	0	0	10	0	0	February
Revenel.....	W	32	10	31.3	32	5	15.6	32	0	0	Do.
McClellanville.....	W	129	31	24.0	129	8	6.2	123	0	0	Do.
Chicora.....	W	62	16	25.8	62	5	8.1	61	1	1.6	Do.
Lincoln.....	C	50	18	36.0	50	5	10.0	50	1	2.0	Do.
Total.....	W	277	58	21.0	277	20	7.2	270	2	.7	
	C	50	18	36.0	50	5	10.0	50	1	2.0	
Georgetown:											
Piasant Hill.....	W	61	12	19.7	61	6	9.8	61	0	0	Do.
Andrews.....	W	50	15	30.0	50	6	12.0	50	1	2.0	Do.
Howard High.....	C	63	23	36.5	63	7	11.1	54	1	1.9	Do.
Total.....		174	50	28.7	174	19	10.9	165	2	1.2	
Aiken:											
Montmorenci.....	W	29	0	0	29	1	3.4	28	0	0	Do.
White Pond.....	W	14	0	0	14	0	0	14	0	0	Do.
Graniteville.....	W	111	28	25.2	111	0	0	110	0	0	Do.
Ellenton.....	W	72	27	37.5	72	1	1.4	70	2	2.9	Do.
Total.....		226	55	24.3	226	2	.9	222	2	.9	

## TAYLOR COUNTY, FLA.

School	Race	History			Spleen			Blood			Date, 1924
		Number exam- ined	Number posi- tive	Per- cent posi- tive	Number exam- ined	Number posi- tive	Per- cent posi- tive	Number exam- ined	Number posi- tive	Per- cent posi- tive	
Log Camp.....	W	33	22	67.0	33	5	15.1	33	4	12.1	January
Carbur.....	W	119	38	32.0	119	18	15.1	40	9	22.5	Do.
Diamond.....	W	474	146	31.0	474	26	5.5	28	17	61.0	Do.
Total.....		626	206	33.0	626	49	7.8	101	30	29.7	

## LEFLORE COUNTY, MISS.

School	Race	History			Spleen			Blood			Date, 1925
		Number exam- ined	Number posi- tive	Per- cent posi- tive	Number exam- ined	Number posi- tive	Per- cent posi- tive	Number exam- ined	Number posi- tive	Per- cent posi- tive	
Morgan City.....	W	48	33	69.0	48	8	16.7	16	2	12.5	Apr. 2.
		83	11	13.2	83	11	13.2	83	3	3.6	Nov. 6.
Race Track.....	W	14	8	57.0	14	0	0	8	0	0	Apr. 30.
		9	4	44.4	9	1	11.1	9	0	0	Nov. 8.
Boyd's Bayou.....	C	14	6	42.9	14	0	0	14	2	14.2	Apr. 19.
		7	3	42.9	7	3	42.9	7	2	28.8	Nov. 8.
Total, white and colored.		76	47	61.9	76	8	10.5	38	4	10.5	April.
		99	19	19.1	99	15	15.0	99	5	5.0	November

## TUNICA COUNTY, MISS.

*Examinations in relation to major drainage*

School	Race	History			Spleen			Blood			Date, 1923
		Num-ber exam-ined	Num-ber positive	Per-cent positive	Num-ber exam-ined	Num-ber positive	Per-cent positive	Num-ber exam-ined	Num-ber positive	Per-cent positive	
Evansville.....	W	19	12	63.2	10	2	20.0	19	2	10.5	October.
Perry.....	W	7	0	0	7	0	0	6	1	16.6	Do.
Robinsonville.....	W	18	5	27.8	18	3	16.7	18	0	0	Do.
Clacks.....	C	11	9	81.8	11	3	27.2	11	2	18.1	November.
Indian Creek.....	C	16	3	18.7	16	2	12.5	16	0	0	Do.
Commerce.....	C	10	4	40.0	10	1	10.0	10	1	10.0	Do.
Johnson Chapel.....	C	4	1	25.0	4	0	0	4	0	0	Do.
Owens.....	C	11	3	27.3	11	2	18.2	11	3	27.3	Do.
Bowdro.....	C	12	4	33.3	12	3	25.0	12	2	16.6	Do.
McPeak.....	C	14	9	64.2	14	2	14.3	14	5	35.8	Do.
Hollywood.....	C	20	5	25.0	20	3	15.0	20	3	15.0	Do.
Stewart.....	C	12	8	66.6	12	2	17.0	12	6	50.0	Do.
Miller.....	C	16	8	50.0	16	7	43.7	16	7	43.7	Do.
Minton.....	C	16	7	43.7	16	3	18.7	16	4	25.0	Do.
Rainey.....	C	10	7	70.0	10	2	20.0	10	2	20.0	Do.
Missionary Ridge.....	C	13	4	30.8	13	2	15.3	13	0	0	Do.
Highland.....	C	8	5	63.0	8	3	37.5	8	1	12.5	Do.
Tunica.....	C	23	18	78.3	20	4	20.0	23	2	8.7	Do.
Forrestdale.....	C	7	1	14.3	7	0	0	7	1	14.3	Do.
Total white.....		44	17	38.6	35	5	14.3	43	3	7.0	October.
Total colored.....		203	96	47.2	200	39	19.5	203	39	19.2	November

## MISSISSIPPI, 1924 AND 1925

County and school	Race	History			Spleen			Blood			Date
		Num-ber exam-ined	Num-ber positive	Per-cent positive	Num-ber exam-ined	Num-ber positive	Per-cent positive	Num-ber exam-ined	Num-ber positive	Per-cent positive	
Tippah:											1924
Ripley High.....	W	100	25	25.0	100	6	6.0	100	13	13.0	November.
Peoples.....	W	71	47	66.2	71	9	12.7	71	14	19.7	Do.
Blue Mountain.....	W	82	48	58.5	37	0	0	82	7	8.5	Do.
Tippah-Union.....	W	60	20	33.3	60	0	0	60	5	8.3	Do.
Falkner.....	W	82	54	65.8	82	5	6.1	82	11	13.4	Do.
Agricultural High.....	W	71	22	31.0	71	0	0	71	4	5.6	Do.
Walnut.....	W	45	29	64.4	45	2	4.4	45	2	4.4	Do.
Total.....		511	254	49.7	466	22	4.7	511	56	10.9	
Lee:											
Nettleton.....	W	201	32	15.9	201	1	0.5	201	7	3.5	Do.
Shannon.....	C	17	3	17.6	17	0	0	17	0	0	Do.
Do.....	W	94	10	10.6	94	0	0	93	1	1.7	Do.
Pratts.....	W	83	32	38.6	83	3	3.6	83	7	8.4	Do.
Total.....		395	77	19.5	395	4	1.0	394	15	3.8	
Pearl River:											1925
Savannah.....	W	55	5	9.1	55	0	0	55	0	0	January
Poplarville.....	W	78	10	12.8	78	0	0	78	3	3.9	Do.
Oak Grove.....	W	28	4	14.3	28	0	0	28	1	3.6	Do.
Buck.....	W	75	28	37.3	75	2	2.6	75	9	12.0	Do.
White Sand.....	W	52	4	7.7	52	3	5.8	52	8	15.4	Do.
Industrial.....	W	60	20	33.3	60	4	6.6	60	6	10.0	Do.
Caesar Line.....	W	47	3	6.4	47	0	0	47	0	0	Do.
Sleepy Hollow.....	W	65	5	7.7	65	2	3.1	65	2	3.8	Do.
Total.....		460	79	17.2	460	11	2.4	460	29	6.3	
Jackson:											
Kreole.....	W	26	10	38.5	26	4	15.4	26	3	11.5	February.
Pecan.....	W	21	4	19.0	21	0	0	21	1	4.8	Do.
Moss Point.....	W	59	28	47.5	59	2	3.4	59	5	8.5	Do.
Escataupa.....	W	59	23	38.9	59	2	3.4	59	3	5.1	Do.

## MISSISSIPPI, 1924 AND 1925—Continued

County and school	Race	History			Spleen			Blood			Date
		Number exam- ined	Number posi- tive	Per cent posi- tive	Number exam- ined	Number posi- tive	Per cent posi- tive	Number exam- ined	Number posi- tive	Per cent posi- tive	
Jackson—Con.											1925
Big Paint.....	W	30	10	33.3	30	0	0	30	2	6.7	February.
Hurley.....	W	33	8	24.2	33	0	0	33	2	6.1	Do.
Van Cleave.....	W	73	27	37.0	73	0	0	73	6	8.2	Do.
Daisy Vestry.....	W	25	9	36.0	25	1	4.0	25	2	8.0	Do.
Woodrow											
Wilson.....	W	18	4	22.2	18	1	5.6	-----	-----	-----	Do.
Ocean Springs.....	W	27	4	14.8	27	1	3.7	-----	-----	-----	Do.
Total.....		371	127	34.2	371	11	2.9	326	24	7.3	
Hancock:											1924
Lee Town.....	W	54	4	7.4	52	1	1.9	54	3	5.6	December.
Catahoula.....	W	52	4	7.7	52	2	3.8	52	5	9.6	Do.
Waveland.....	O	28	0	0	28	0	0	28	3	10.7	Do.
Do.....	W	52	0	0	52	0	0	52	2	3.8	Do.
Jordan River.....	O	109	0	0	109	0	0	-----	-----	-----	Do.
U. C. Jones.....	C	44	3	6.8	44	0	0	-----	-----	-----	1925
St. Rose.....	O	29	0	0	29	0	0	-----	-----	-----	January.
Flat Top.....	W	42	4	9.5	42	1	2.3	-----	-----	-----	Do.
Delta.....	W	98	0	0	98	0	0	-----	-----	-----	Do.
Log Town.....	C	35	0	0	35	0	0	-----	-----	-----	Do.
Total.....		543	15	2.7	541	4	.74	186	13	7.0	

## LOUISIANA, 1925

County and school	Race	History			Spleen			Blood			Date, 1925
		Number exam- ined	Number posi- tive	Per cent posi- tive	Number exam- ined	Number posi- tive	Per cent posi- tive	Number exam- ined	Number posi- tive	Per cent posi- tive	
Washington Par- ish:											
Franklyn High.....	W	41	6	14.6	41	2	4.9	40	5	12.5	January.
Long Avenue.....	W	49	49	100.0	49	6	12.2	49	4	8.1	Do.
Rio.....	W	33	7	21.2	33	3	9.1	33	2	6.0	Do.
Enen High.....	W	126	10	7.9	126	5	3.9	126	5	3.9	Do.
Sunny Hill.....	W	87	10	11.5	87	0	0	86	4	4.6	Do.
Mount Hed- mon.....	W	97	14	14.4	97	0	0	97	5	5.1	Do.
Angie High.....	W	63	4	6.4	63	1	1.6	62	6	9.7	Do.
Varnado High.....	W	45	4	8.9	45	2	4.4	45	2	4.4	Do.
Total.....		541	104	19.2	541	19	3.5	538	33	6.1	
Beauregard Parish:											
De Ridder.....	W	59	9	15.2	59	0	0	59	5	8.5	Do.
Do.....	W	65	12	18.4	65	1	1.5	60	7	11.6	Do.
Longville.....	W	100	40	40.0	100	5	5.0	100	8	8.0	Do.
De Ridder.....	W	28	4	15.4	26	0	0	26	2	7.7	Do.
Sugartown.....	W	95	16	16.8	95	6	6.3	95	4	4.2	Do.
Merryville.....	O	150	0	0	150	7	4.6	86	6	7.0	Do.
Total.....		495	81	16.4	495	19	3.8	426	32	7.5	
Natchitoches Par- ish:											
Model.....	W	287	77	26.8	287	5	1.7	287	16	5.6	February.
Caddo Parish:											
St. James.....	O	60	38	63.0	60	4	6.6	60	2	3.3	Do.
Dixie.....	W	14	5	35.7	14	0	0	14	1	7.1	Do.
Ida.....	W	38	16	42.1	38	3	7.9	38	5	13.1	Do.
Oak Grove.....	W	73	11	15.1	73	3	4.1	73	4	5.4	Do.
Oil City.....	W	100	31	31.0	100	3	3.0	100	6	6.0	Do.
Total.....		285	101	35.5	285	13	4.5	285	18	6.3	

## DISCUSSION

A history rate alone is manifestly unreliable as a quantitative measure of the amount of malaria in a community. It is useful as indicating the probable presence or absence of a malaria problem and the need, or lack of need, of more exact determination by the spleen or blood method or both.

The spleen rate is evidently a useful index in southern United States; but, owing to the small numbers involved, it should be supported wherever practicable by the examination of blood smears. An erroneous impression might be obtained by depending upon either method alone. The combination of the two presents a much more accurate picture.

The results of these and of previous studies show that, except for certain very limited areas, malaria is only lightly endemic in southern United States. The spleen and blood rates are, for the most part, quite low as compared with similar rates in the native populations of many tropical countries. This is not surprising in view of (1) the relatively short period of transmission—from about June 15 to October 1; (2) the comparatively good economic status of most rural populations in this country—particularly as affecting nutrition and quinine medication; and (3) the fact that the disease has a definite trend downward in this country, already having disappeared from large areas.

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- (2) Extracts from References in Available Literature Pertaining to Spleen Examinations in Malaria. Pub. Health Rep., Apr. 22, 1921, vol. 36, No. 16, pp. 884-888. (Reprint No. 653.)
- (3) Maxey, Kenneth F., and Coogle, C. P.: Methods for Determining Malaria Prevalence—The Spleen Rate of School Boys. Southern Med. Jour., April, 1923, vol. 16, pp. 269-275.
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# A COMPARISON OF THE INCIDENCE OF ILLNESS AND DEATH<sup>1</sup>

## (1) BY CAUSE AND (2) BY AGE OF PERSONS AFFECTED

### Hagerstown Morbidity Studies No. V

By EDGAR SYDENSTRICKER, *Statistician, United States Public Health Service*

In a preliminary report upon the results of a morbidity study in Hagerstown, Md.,<sup>2</sup> the general observation was offered that the problems and aims of public health are still set forth almost entirely in lethal terms whenever statistics are used. It was pointed out that, in appraising the results of public health work, we are in the habit of speaking of a "favorable" or an "unfavorable" death rate for the reason that the best indices, up to the present time, of the prevalence of nearly all diseases are the fatal cases only. Even our epidemiology is limited, for the most part, to statistics of deaths.

The suggestion was also ventured that one effect of this prolonged dependence upon mortality statistics has been to foster a fallacious premise for public health work, namely, that a low death rate indicates the absence of ill health. Obviously it does not. We know that, on the contrary, an exceedingly unhealthful region may exhibit a mortality which is not extremely high, as, for example, a heavily infested hookworm locality, or a section abounding in malaria. Pellagra may be widely prevalent in a community without affecting materially its general death rate or even causing a large number of deaths from the disease itself. Instances of the same sort could be multiplied. Much ill health that is manifested in symptoms, in discomfort, in lessened vigor and efficiency, even in illness and suffering, is not reflected in the death rate, except for certain diseases, for any purpose practicable in preventive work.

What really matters more to the sanitarian, therefore, in his scientific searching for causes and conditions and in his preventive work, is not deaths but *ill health*. Of far greater importance to him than the life table or the list of causes of death is a view of the health situation as depicted by indications of *physical impairments* as shown by competent medical examination, and by records of

<sup>1</sup> From the Office of Statistical Investigations, U. S. Public Health Service. Other Hagerstown Morbidity Studies published are—

I. A Study of Illness in a General Population Group; Method of Study and General Results. Pub. Health Rep., vol. 41, No. 39, Sept. 24, 1926. (Reprint No. 1113.)

II. The Reporting of Notifiable Diseases in a Typical Small City. Pub. Health Rep., vol. 41, No. 41, Oct. 8, 1926. (Reprint No. 1116.)

III. The Extent of Medical and Hospital Service in a Typical Small City. Pub. Health Rep., vol. 42, No. 2, Jan. 14, 1927. (Reprint No. 1134.)

IV. The Age Curve of Illness. Pub. Health Rep., vol. 42, No. 23, June 10, 1927. (Reprint No. 1163.)

<sup>2</sup> The Incidence of Illness in a General Population Group. Pub. Health Rep., vol. 40, No. 7, Feb. 12, 1925. (Reprint No. 989.)

the occurrence of *sickness* and its attendant conditions. If such a view were permitted him, it will hardly be denied that the resulting change in his perspective would lead him to modify considerably his scheme for research and his program of effort.

So far as the incidence of illness is concerned, the published reports on absences from school and from work on account of sickness and on several illuminating sickness surveys already constitute an important beginning of this essential knowledge. The continuous observation, during a 28-month period, of a white population group of over 7,000 persons of all ages and both sexes in Hagerstown for the occurrence of sicknesses and deaths will, it is believed, contribute a fragment of a somewhat broader scope to the accumulating body of morbidity data.

In this paper of the series it is purposed to compare the indications of ill health afforded by the records of morbidity and mortality in a fairly typical population. In a subsequent paper it is intended to present the results of the Hagerstown study from the viewpoint of the kinds of illness (i. e., according to diseases and conditions) among persons of different sexes and ages and to discuss these results in the light of the causes of mortality and of certain defects and conditions as revealed by medical examinations.

The scope and method of this study have been described and discussed in considerable detail already in the first of this group of papers and need not be repeated here. It is important to keep in mind, however, a few considerations in order that the results herewith presented may not be misinterpreted.

The first consideration is that the study was a *series* of observations which was directed as specifically as possible to the illnesses which occurred among a population during the period chosen, thus yielding a fairly continuous record for the same persons. In fact, it was found that over 60 per cent of this population was observed at intervals of 6 weeks to 2 months for a period of 26 months or longer and that 90 per cent were so observed for 12 months or longer.

The second consideration is that the statistical unit was an attack of *illness* as reported by the household informant (usually the wife), either as experienced by herself or as she observed it in her family. The definition of the term illness, therefore, can not be refined any further than the common understanding of the word. Nearly 80 per cent of the illnesses recorded were three days or longer in duration; approximately 40 per cent were not only disabling, but caused confinement to bed; less than 5 per cent were less than two days in duration. Thus, although the causes as reported of many illnesses were obviously symptoms, sometimes apparently unimportant, in the main the attacks recorded were more than trivial in their character. In fact, 46 per cent of *all* attacks were attended by physicians; if we

exclude "colds" and minor digestive disturbances, 65 per cent were so attended, in almost every instance of which the physician's diagnosis was obtained.

The third, and perhaps most important, point to be remembered is that the records of illnesses are not a complete portrayal of the ill health that was prevalent. This is especially true of organic disorders and diseases. For, obviously, illness is only one kind of evidence of such conditions as these; their accurate and complete discovery is yet only a partially attained objective of medical science which uses not merely the occurrence of morbid effects, but also the observation of symptoms and the tests of the physical examination and the laboratory. The incidence of illness from a given cause, as we recorded it in this study, means nothing more than that which the words signify; certainly it should not be interpreted as indicating the incidence or prevalence of diseases or conditions that did *not* result in illness.

Furthermore, it is obvious that whatever comparison we make of morbidity and mortality is a comparison of the *incidence* of illness (such as we have defined it) with the *incidence* of death during a period of relatively short duration (28 months) in the same, or what amounts to the same, population. Only a small proportion of these deaths were actually related to the illnesses observed and, except for this minority, which were due chiefly to acute and sudden causes, the deaths may be regarded as the results of causes and conditions operating also before the morbidity study was begun. The assumption must be implied, therefore, that the mortality and morbidity rates during the 28 months' period are characteristic of this population and that any general relationship between them is also characteristic.

The deaths occurring in the population group observed for illness during the period of study numbered 154. In a later report these deaths will be considered in some detail, but for the present purposes the number is rather small. It has been further assumed that the group observed for illness was fairly representative of the entire white population of Hagerstown, and, therefore, that it would be proper to use the deaths occurring among the entire white population in making the general comparisons of the incidence of morbidity and mortality that we have in mind. The total deaths in the white population during the 28 months' period numbered 905, giving an annual rate of 13.0 per 1,000. Of these, however, 201 were of non-residents. Deducting the nonresident deaths, the annual rate becomes 10.1 per 1,000,<sup>3</sup> which, although slightly in excess of the rate

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<sup>3</sup> According to the Bureau of the Census, 764 deaths occurred in Hagerstown during the calendar years 1922 and 1923, giving an annual rate of 12.8 per 1,000. If a deduction of 22.2 per cent be made for non-residents, the rate becomes 9.9 per 1,000.

(9.3 per 1,000) for the population group studied, may be regarded as satisfactory for the present purposes.<sup>4</sup>

The first comparison made is of total mortality with total morbidity of the degree and kind already defined, as follows:

TABLE 1.—*Mortality and morbidity among white persons in Hagerstown, Md., December 1, 1921–March 31, 1924*

	Mortal- ity in total white popu- lation	Morbid- ity in white popu- lation studied
Annual rate per 1,000.....	10.1	1,080.5
Number of occurrences.....	1,704	17,847
Years of life observed.....	69,715	16,517

<sup>1</sup> Exclusive of 201 deaths of nonresidents.

The illness rate thus was slightly over 100 times the death rate, there being 107 illnesses observed for each death. If we use the death rate of 9.3 per 1,000 among the observed population group, the number of illnesses per death was 116. The difference, or in fact the precise figure, does not have much significance.

If this ratio of illnesses to deaths is anywhere near that which would be found for the general population, the guess may be ventured that upon a rate of 1.0805 annual illnesses lasting three days or longer per person, the illnesses in 1922–23 among the population of the United States would have approximated the impressive total of 120 millions per year. If one takes the death rate in the mortality registration area as a basis, which was about 12.05 per 1,000 in 1922–23, and the ratio of 107 illnesses per death, the still more imposing total of over 140 million illnesses per year would be indicated. One hesitates to stretch the validity of a study of a small sample, however carefully made, by using it as the basis of broad estimates for larger populations. If it pleases anyone to play with figures in this manner, probably these estimates are not so far away.

This ratio of approximately 100 illnesses annually to each death is not to be compared, of course, with the much-quoted estimate of two persons constantly sick for each death, since the morbidity terms of the ratios are entirely different things. Nor is it to be compared with the *prevalence* rate of 2 per cent of persons over 1 year of age as indicated by recent sickness surveys, for the same reason.

<sup>4</sup> The distribution of deaths among nonresidents according to cause does not exhibit very marked differences from a similar distribution for deaths among residents except a higher proportion among nonresidents from external causes, appendicitis, diphtheria, and typhoid fever, which may be explained by deaths of nonresidents from these causes in local hospitals. Of the total 201 deaths of nonresidents, 73 occurred in the general hospital.

The next general comparison which suggests itself is of the "causes" or, to put it perhaps more precisely, of the diseases by which we denote the condition of illness or the reason for death. The accuracy with which the illnesses were classifiable and the procedure in classification according to disease have been discussed already in the first report of this series. The deaths were classified from the entries made upon the death certificates, following the Bureau of the Census procedure in instances where more than one cause was stated. In Table 2 the annual rates of illness and of deaths per 1,000 are given for 12 groups of diseases. The percentage distribution of illnesses and deaths according to this classification is also shown.

TABLE 2.—*Illness and death rates in Hagerstown, Md., by groups of causes*

[Based on illness records for approximately 7,000 white persons of all ages, and death records for total white resident population, Dec. 1, 1921–Mar. 31, 1924]

Cause <sup>1</sup>	Annual rate per 1,000		Per cent distribution, by cause	
	Illnesses	Deaths	Illnesses	Deaths
Diseases of respiratory system (11, 31, 97–107, 109).....	672.3	1.995	60.0	19.8
Epidemic, endemic, and infectious (1–42, exc. 11, 31).....	88.7	.230	7.9	2.3
General diseases (43–69).....	23.1	1.118	2.1	11.1
Diseases of nervous system (70–84; part 205).....	48.6	1.118	4.4	11.1
Diseases of eyes and ears (85–86).....	23.4	.043	2.1	.4
Diseases of circulatory system (87–96).....	24.0	2.410	2.1	23.9
Diseases of digestive system (110–127, 108; part 205).....	110.2	.574	9.8	5.7
Diseases of kidneys and annexa (128–134).....	14.4	1.062	1.3	10.5
Nonvenereal diseases of genito-urinary system (135–142).....	13.0	.100	1.2	1.0
Puerperal conditions (143–150).....	24.3	.129	2.2	1.3
Diseases of skin and cellular tissue (151–154; part 205).....	19.4	.029	1.7	.3
External causes (155–203).....	39.7	.516	3.5	5.1
Other and ill defined (155–164; part 205).....	19.3	.775	1.7	7.7

<sup>1</sup>Numbers in parentheses refer to those given in the International List of Causes of Death, 1920.

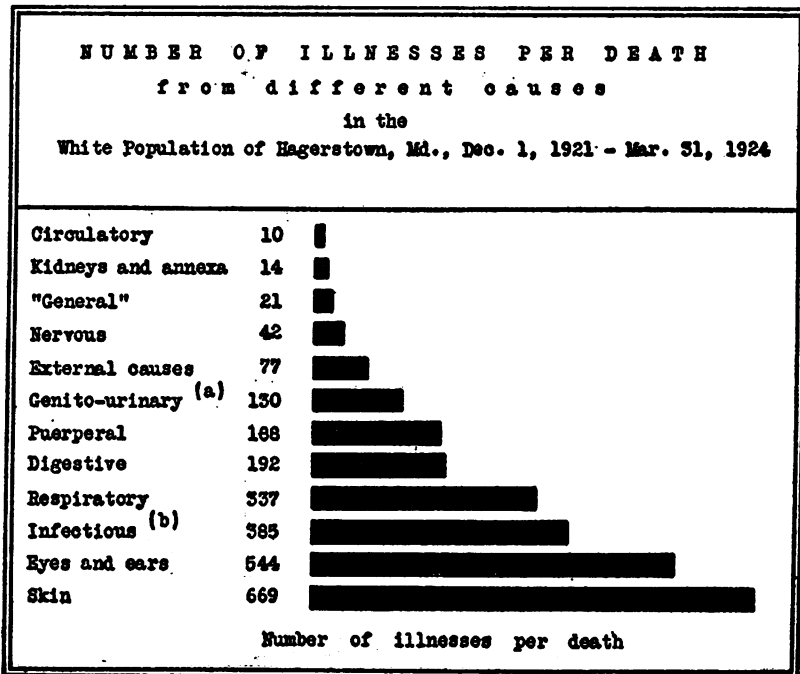
The contrast is a striking one in several respects. Respiratory diseases and disorders account for 60 per cent of illness as against about 20 per cent of deaths; the general group of "epidemic, endemic, and infectious" diseases account for 8 per cent of illnesses, whereas only about 2 per cent of the deaths were ascribable to this group; digestive diseases and disorders occasioned 10 per cent of the illnesses as against 6 per cent of the total mortality. On the other hand, the group of "general" diseases (which includes cancer), the diseases of the nervous and circulatory systems, and the diseases of the kidneys and annexa were relatively much more important causes of mortality than of morbidity. The diseases of the heart and circulatory system show the sharpest contrast; 24 per cent of deaths are ascribed to these conditions as against only 2 per cent of illnesses. In other words, these diseases manifest themselves relatively rarely in definitely morbid effects, although they undoubtedly shorten life and make life less efficient and enjoyable while it lasts. The comparison

may be stated also as the ratio of illnesses to deaths, which is shown in Table 3. This expression of a broad relationship is preferable, perhaps, to the number of deaths per 100 or per 1,000 illnesses, since the latter implies too definitely an actual case fatality rate; obviously 28 months is too short a time to ascertain the fatality of many of the diseases which were found to be prevalent. A large proportion of the deaths we are considering were not the end results of the illnesses observed.

TABLE 3.—*Ratio of illness rate recorded in a population group of about 7,000 white persons of all ages to the mortality rate in the total white resident population, in Hagerstown, Md., December 1, 1921–March 31, 1924, by disease groups*

Disease groups <sup>1</sup>	Number of illnesses per death	Disease groups <sup>1</sup>	Number of illnesses per death
Skin.....	669	Genito-urinary (nonvenereal).....	130
Eyes and ears.....	544	External causes.....	77
Epidemic, endemic, and infectious.....	385	Nervous.....	42
Respiratory.....	337	"General".....	21
Digestive.....	192	Kidneys and annexa.....	14
Puerperal.....	188	Circulatory.....	10

<sup>1</sup> See Table 2 for definitions of disease groups.



(a) Non-venereal.

(b) Epidemic, endemic, and infectious.

Fig. 1.

The enormous variations in the number of illnesses per death according to disease or condition suggest two reflections that may be worth while. One is the observation with which this paper was introduced, that the mortality record is a very poor measure of the amount of illness from most causes in population groups of the size ordinarily dealt with in public-health work. The other reflection is in the nature of the converse of the first, that the incidence rate of illness per se is an inadequate index of the seriousness of the responsible disease or condition. These are quite self-evident facts, but they are not always kept in mind in the interpretation of mortality and morbidity statistics.<sup>5</sup>

Finally, we may compare the incidence of illness with the incidence of deaths at different ages. In a later report the age incidence of some of the more frequent causes of illness will be presented in some detail; at this time we shall consider only illness from all causes with a distinction between respiratory and nonrespiratory as the only refinement.

The morbidity and mortality experience by age groups used in this comparison is given in Table 4. The annual rates of incidence are contrasted in Table 5, and are graphically shown in Figures 2 and 3.

TABLE 4.—*Morbidity and mortality experience used in Hagerstown study for the period December 1, 1921–March 31, 1924, by age groups*

Age, in years	Population group under observation		White population of Hagerstown	
	Number of years of life observed	Number of illnesses	Number of years of life considered	Number of deaths
0-4.....	1,777	2,822	7,460	131
5-9.....	2,105	3,270	7,111	13
10-14.....	1,713	2,034	6,065	4
15-19.....	1,389	1,062	5,856	17
20-24.....	1,137	809	6,483	16
25-34.....	2,472	2,158	12,479	36
35-44.....	2,171	2,006	9,481	46
45-64.....	2,575	2,554	11,364	163
65 and over.....	810	875	3,346	278

<sup>5</sup> I am indebted to Dr. Eugene Lyman Fiske for a kindly criticism of the preliminary report upon this study in which he was good enough, in a personal letter, to suggest the need for greater emphasis than had been given in the report upon the inadequacy of illness as an indication of the presence and severity of certain conditions which lead to death.

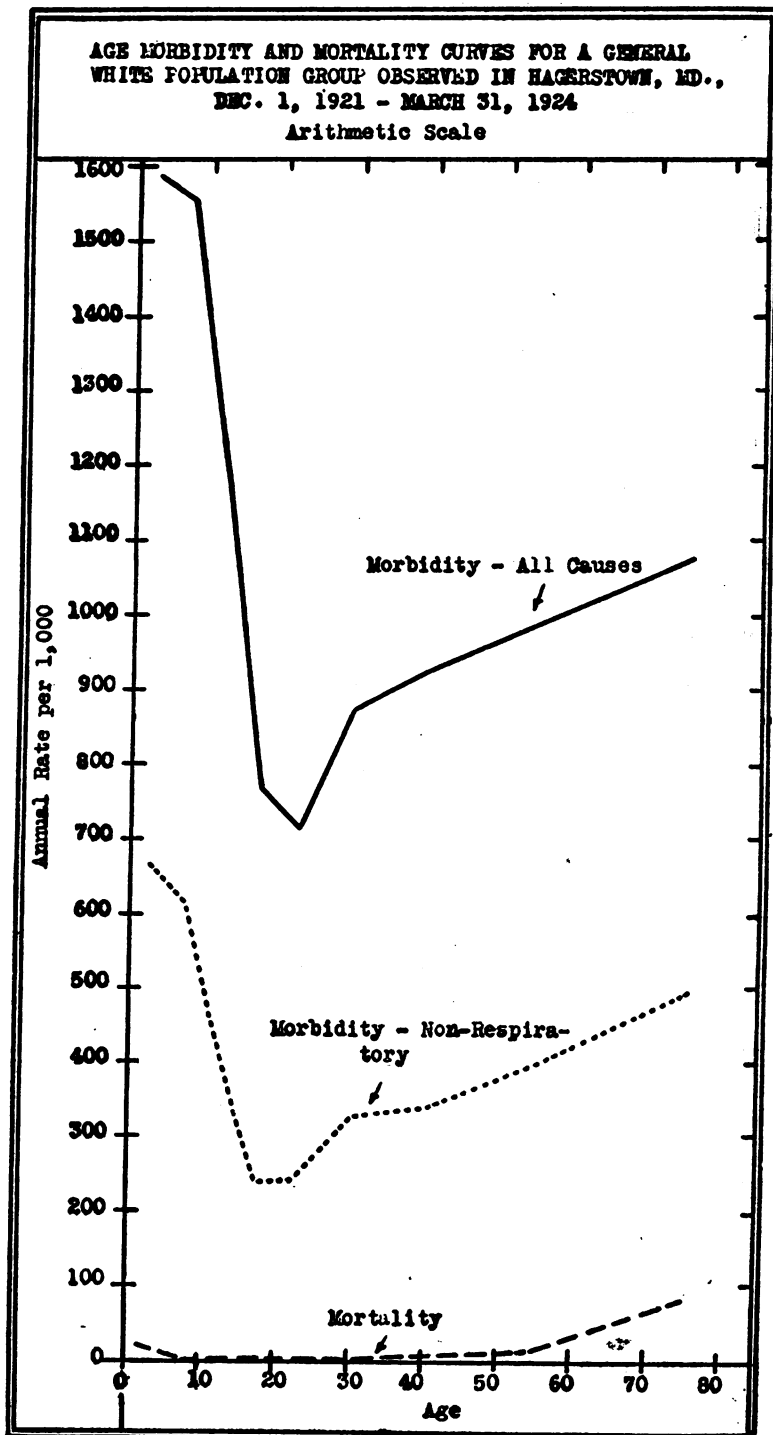


Fig. 2.

See.

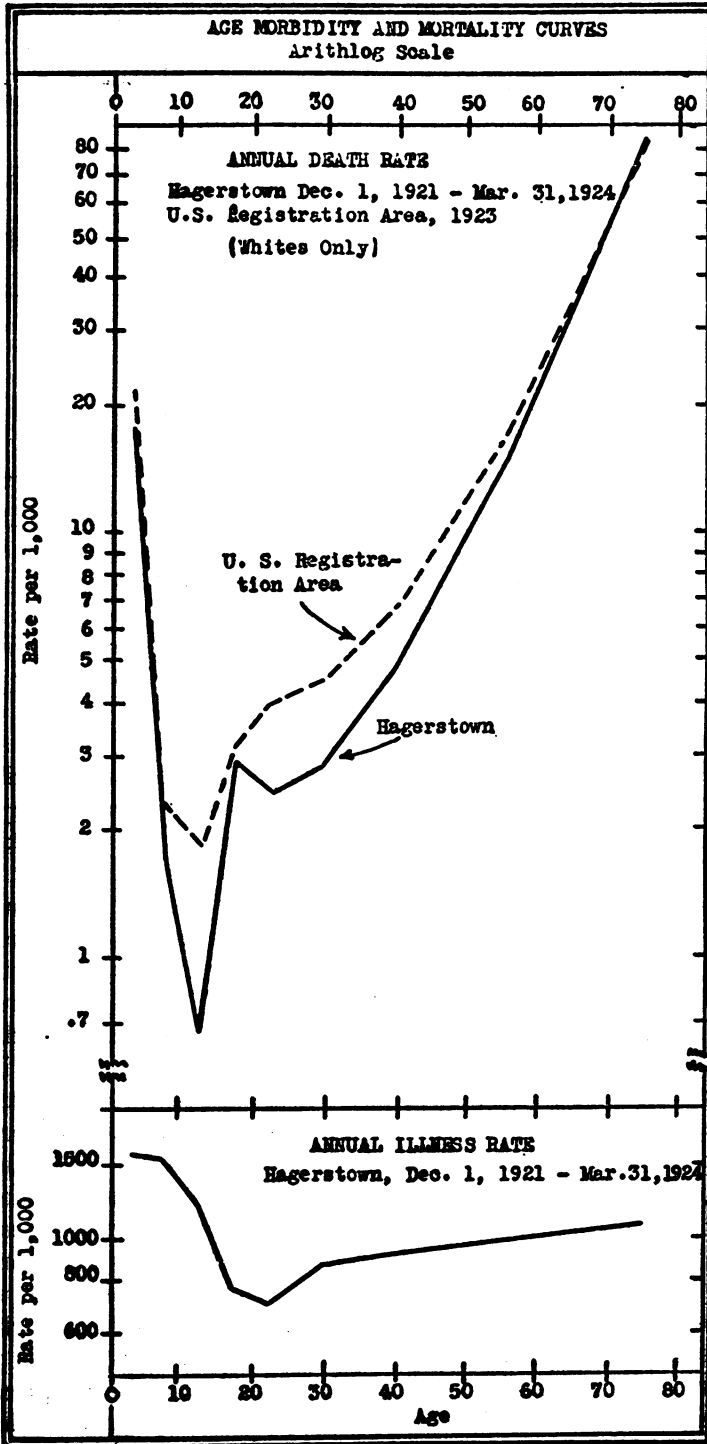


Fig. 3.

TABLE 5.—*Illness and death rates for white populations in Hagerstown, Md., and United States registration area, by age groups*

Age, in years	Annual rate per 1,000 of population		
	Dec. 1, 1921–Mar. 31, 1924		Deaths in registration area of United States in 1923
	Illness in an observed group	Deaths in total resident population	
0-4.....	1,588	17.56	21.38
5-9.....	1,554	1.83	2.35
10-14.....	1,187	.66	1.80
15-19.....	764	2.90	3.10
20-24.....	712	2.47	3.95
25-34.....	872	2.89	4.51
35-44.....	924	4.85	6.70
45-64.....	991	14.34	16.13
65 and over.....	1,080	83.08	81.6

In Figure 2 the contrast is made of the morbidity curve with the mortality curve, the two being plotted on the same arithmetic scale in order to bring into clear relief the enormous difference at every period of life. Even if we exclude illnesses of a respiratory nature and thus throw out of consideration the colds and other minor respiratory affections, the morbidity curve (shown by the dotted graph) is far above the mortality curve.

The contrast of the morbidity and mortality rates from the standpoint of *size* obscures almost entirely any comparison of the variations according to age in the two rates. Although the annual morbidity rate per 1,000 varied from 712 to 1,588, the annual mortality rate per 1,000 varied from 0.66 to 83.08, which indicates a dispersion many times greater than that of the morbidity rates in the same age categories. The differences in the amount of variation as well as in its rate of rise or fall may be exhibited graphically by using a logarithmic ordinate scale, as has been done in Figure 3. Thus it is shown that, while the incidence of morbidity falls rapidly after childhood until early adult ages are reached, the decline in the mortality rate is at a tremendously greater rate. Again, while the morbidity rate rises gradually from the age period 20-24 as age increases, the mortality rate accelerates rapidly after the age period 25-34. Another important difference is shown in the age period 15-19, where the morbidity rate continues to decrease but the mortality rate rises very sharply from the low level at 10-14. The Hagerstown mortality curve for the 28-month period, however, is lower than that for whites in the registration area, the difference being particularly marked in the age period 10-14 and 20-44. It exhibits also an unusual variation in the age period 15-19, which probably is without great significance because of the small number of deaths upon which the rate

for this age period is based. Probably a better comparison of the variations in the morbidity and mortality curves is afforded by using the larger mortality experience, and the age specific death rates for the registration area have been plotted in Figure 3. The general differences between the morbidity and mortality curves are obvious enough. They emphasize the need for further details as to the causes and conditions involved in the prevalence of physical impairments and the incidence of illness and death at different ages, a topic upon which it is hoped soon to make some contributions from the material collected over several years past.

TABLE 6.—*Ratio of illnesses to deaths at different ages*

Age, in years	Number of illnesses per death		
	Illness rate in observed white population in Hagerstown, Md., to death rate in—		Disabling sicknesses to deaths in total membership of Leipzig Sick Fund, 1887-1905
	White resident population of Hagerstown, Dec. 1, 1921-Mar. 31, 1924	White population of registration area, 1923	
0-4.....	90	74	-----
5-9.....	850	661	-----
10-14.....	1,798	659	383
15-19.....	263	246	120
20-24.....	288	180	79
25-34.....	304	193	70
35-44.....	191	139	52
45-64.....	69	61	26
65 and over.....	13	13	12

The contrast may be expressed arithmetically by computing the number of illnesses recorded in the observed group per death in the resident white population of Hagerstown. This series of ratios is given in Table 6 and is plotted in Figure 4. The specific white death rates for the registration area in 1923 have been used as the basis for a similar series of ratios, which are also given. As a point of some interest, the ratios have also been computed from the experience of the Leipzig Local Sick Fund, which is limited to *disabling* sicknesses of at least one day's duration and thus illness of a severer kind than the Hagerstown study includes.

The variation according to age in the number of illnesses per death is, of course, a generalization that should be interpreted in broad terms only. Thus, we may say that the curve in Figure 4 is a rough approximation of the average person's ability in different periods of life to withstand the effects of diseases that have attacked him, this resistance being understood in terms of survival. His

greatest resistance to death is in childhood, the age period 5-14; his lowest resistance is in infancy and early childhood (0-4 years), and in middle and old age. His ability to survive illness thus varies markedly from his resistance to illness at different ages, particularly in childhood (5-14), when he suffers from illness frequently but has

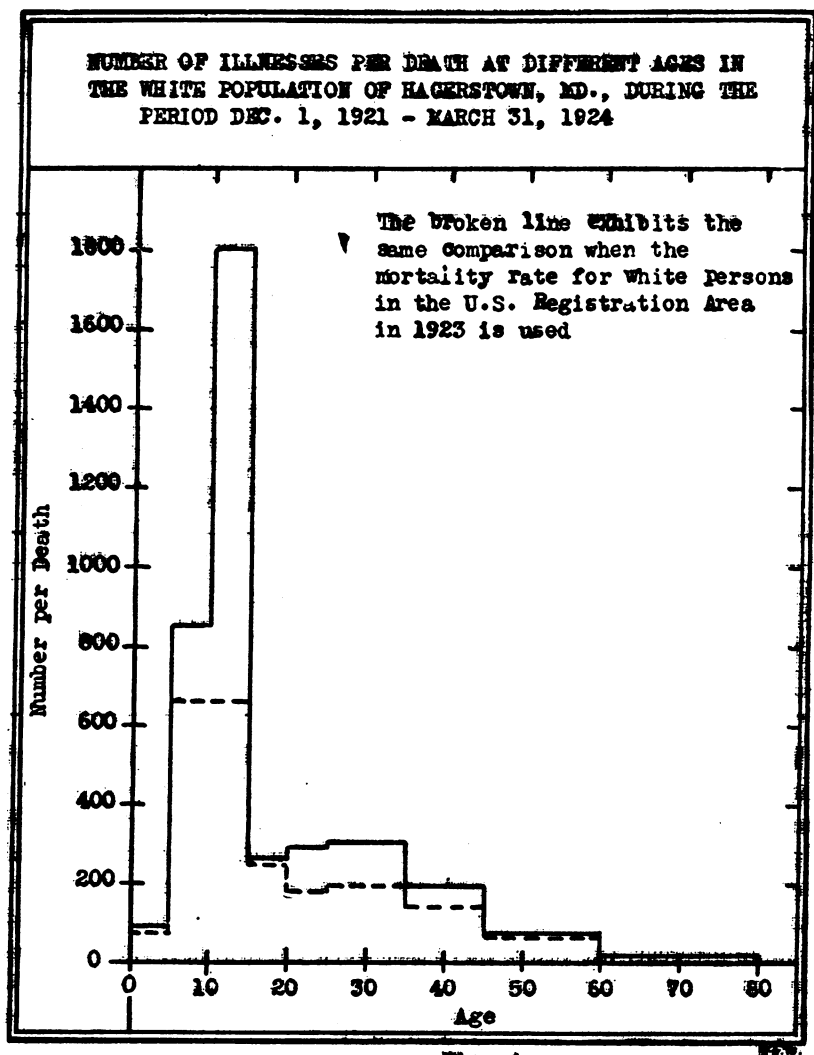


Fig. 4.

a relatively small chance of dying, and in the older years when not only does his susceptibility to illness but also his chances of death increase. This is due partly, of course, to differences in the nature of the illnesses occurring at these ages and partly to the diminished ability to resist the diseases which manifest themselves in morbidity.

## ACKNOWLEDGMENTS

The continuous field observations upon which the foregoing report is based were made by the following assistants: F. Ruth Phillips, Mrs. Mary King Phillips, Louise Simmons, Mrs. Clara Bell Ledford, Clarice Buhrman, and Mrs. Alcesta Owen, under the immediate supervision of Passed Asst. Surg. R. B. Norment, jr., Acting Asst. Surg. A. S. Gray, and later of Surg. C. V. Akin.

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## CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT ISSUED MAY 15, 1927, BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT<sup>1</sup>

*Plague.*—The plague incidence during the early spring months was very favorable in nearly all the endemic plague centers, as indicated by the reports made available through the monthly Epidemiological Report of the Health Section of the League of Nations' Secretariat, published May 15, 1927, at Geneva. A summary of cases (or deaths) reported in the 134 ports which send telegraphic information to the Singapore bureau shows that, during the five weeks ended April 30, only 10 towns reported any cases, and in 6 of these the cases indicated only a sporadic incidence. Bombay had the greatest incidence, with 49 deaths reported—more than in the corresponding period a year ago, but less than in earlier years.

Three cases were reported at Alexandria and one at Port Said in the five weeks ended April 30. Six cases were reported in Guerga Province, Egypt, in the first half of April.

In Baghdad, where plague was seriously epidemic a year ago, three cases were reported in April and only two cases during the preceding six months.

The plague epidemic in Tunisia seems to have come to an end, as only one case was reported during the first 20 days of April. There had been 34 cases in the Sfax district in the preceding month.

In Madagascar, the plague incidence declined during March, when 237 cases were reported, as compared with 368 in February and 186 cases in March, 1926.

In the Union of South Africa, 10 cases of plague were reported between March 20 and April 16, from inland localities.

During the year 1926, there were 179 cases of plague reported in the Union of Socialist Soviet Republics, of which 5 were in the Far

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<sup>1</sup> From the Office of Statistical Investigations, United States Public Health Service.

East (Transbaikalia) and the remainder in southeastern Russia (Kalmuk and Kirghiz districts and the Province of Astrakhan), where 256 cases were reported during 1925.

*Cholera*.—The incidence of cholera in the maritime towns of the Far East during April is shown in Table 1. There was a serious outbreak at Calcutta and in Saigon and Haiphong. The number of cases at Bangkok had also increased.

TABLE 1.—*Cholera cases reported in maritime towns of the Far East, March 27 to April 30, 1927*

Maritime town	Number in week ended April—				
	2	9	16	23	30
Bombay (deaths).....	0	0	1	1	2
Madras (deaths).....	0	0	1	0	0
Calcutta (deaths).....	59	74	127	137	121
Bassein (deaths).....	4	10	7	6	0
Rangoon (deaths).....	1	3	1	3	2
Bangkok (cases).....	16	34	19	9	14
Saigon (cases).....	3	11	16	26	55
Haiphong (cases).....	0	8	8	80	124

*Typhus fever*.—"A small typhus outbreak, with 24 cases, occurred in two rural districts of the Irish Free State during the two weeks ended April 2," stated the Report. No additional case was reported in the following three weeks; but in the first week of May, there were two cases, one in the Dublin district and one in a rural district of Donegal County. Typhus infection persists in a limited number of rural districts on the Atlantic seaboard. During the fiscal year 1924-25 there were 49 cases reported, and in the year 1923-24 there were 59 cases.

The increase in typhus in Poland at the end of February, reported last month, continued through March, but the incidence during the first quarter did not exceed that of the preceding year; 1,232 cases were reported compared with 1,575 cases on the first quarter of 1926.

In Rumania, 902 cases of typhus were reported in the first three months of 1927, as compared with 1,611 cases in the corresponding period of 1926.

*Relapsing fever*.—Further information concerning the epidemic of relapsing fever in Darfur, the westernmost province of Anglo-Egyptian Sudan, was furnished by the Sudan Medical Service under date of April 5, and, in part, was as follows:

The disease would appear to have largely died down in Southeast Zalingei and to have been got under control in South Nyala; it is still epidemic in North Nyala, and the epidemic on the east of Gehel Marra has assumed formidable proportions and has reached a point within 55 miles of El Fasher, the capital of Darfur. The outbreak in the Kebkebia area, which had been smouldering, broke out again with some severity, but is now more under control. There is a

small epidemic in Kuttum. The condition of the rest of Zalingei is not yet known.

*Smallpox.*—The incidence of smallpox in England and Wales declined somewhat during April, and 1,489 cases were reported in the four weeks ended April 23, as compared with 1,787 cases in the preceding four weeks and 663 during the corresponding period of the preceding year. Although the disease was still chiefly in the northern counties of England, it has shown a tendency to spread. Sporadic cases have occurred in certain midland counties and an outbreak began toward the end of February in Monmouthshire, in South Wales, where 724 cases had been reported up to April 23. At Dundee, Scotland, there were 116 cases of smallpox reported between March 20 and April 23. Scotland had been practically free from smallpox since 1921.

In Spain, only 6 deaths from smallpox were recorded in the last quarter of 1926, as compared with 222 deaths and 648 deaths, respectively, in the corresponding periods of 1925 and 1924.

The smallpox epidemic at Calcutta reached its peak during the week ended March 26, when 300 deaths were reported. Four weeks later the number had declined to 133 (week ended April 23). The disease was very prevalent also at Bombay and Rangoon.

In the Union of Socialist Soviet Republics, 15,860 cases were reported in 1926, of which number 9,816 were in European territories. The Report states:

The improvement has been very marked in the more densely populated territories where a systematic application of the law on obligatory vaccination has been possible. There were, for instance, only 277 cases in the Ukraine and 406 in the central industrial districts, of which only 2 cases occurred at Moscow. The disease remained more prevalent in the more distant northern and eastern provinces. There were 2,895 cases in the Ural district and 3,304 cases in Siberia.

*Enteric fever.*—The following summary of the prevalence of enteric fever in European countries in recent months is given in the Report:

The higher incidence of enteric fever, which was observed in most European countries during the fourth quarter of 1926, tended on the whole to disappear during the first quarter of the current year. In Germany, where the unusually high number of cases was mostly due to the outbreak at Hanover, the same number of cases was reported during the first three months of 1927 as during the corresponding period of the preceding year. In Poland, where enteric fever was unusually prevalent during the second half of 1926, the incidence had returned to a normal level for the time of the year by February, 1927. In the United Kingdom and in the Scandinavian countries, including Finland, the situation was distinctly favorable, and in the Netherlands only half as many cases were reported as during the most favorable quarter on record. The returns for the fourth quarter of 1926 for the U. S. S. R., including Ukraine, were very favorable; complete data for the Ukraine show by far the lowest incidence for any year since the war. A distinct improvement upon previous years was also shown by the returns for Rumania. In the Kingdom of the Serbs, Croats, and Slovenes the returns for February and March were distinctly favorable.

In most countries of Southern Europe, however, enteric fever was more prevalent than usual. Twice as many cases as during the corresponding periods of the two preceding years were reported in Italy during the last quarter of 1926 and the first quarter of 1927. This excess was not due to a violent outbreak at any particular locality, as in Germany, but to an increased incidence in most provinces. A high prevalence was reported also in Greece, especially in the province of Attica, and in Malta. The number of cases reported in France increased markedly in March. The number of deaths reported in Spain was higher during the fourth quarter of 1926 than during the corresponding period of the three preceding years.

TABLE 2.—Mortality attributed to influenza in various European towns during three months of maximum incidence of the 1926-27 epidemic

Town	Inhabitants (thousands)	Date of maximum incidence	Period	Deaths from influenza	Rate per 100,000 inhabitants
105 English towns	19,540	Feb. 20-26	Jan. 2-Apr. 2	7,476	38.3
London	4,606	Jan. 28-29	do	1,450	31.5
London suburbs	3,186	do	do	1,184	37.2
Birmingham	864	Feb. 20-26	do	867	28.6
Liverpool	866	do	do	223	26.4
Manchester	752	do	do	548	46.3
Leeds	473	Mar. 6-12	do	87	20.5
Sheffield	523	Feb. 20-26	do	186	35.6
Edinburgh	426	Feb. 27-Mar. 5	Jan. 9-Apr. 9	122	28.6
Glasgow	1,049	Mar. 27-Apr. 2	do	89	8.5
Belfast	416	do	Jan. 16-Apr. 16	58	13.9
Dublin	421	Feb. 20-26	do	148	34.4
Oslo	258	Jan. 16-22	Dec. 26-Mar. 26	35	13.6
Stockholm	453	Jan. 30-Feb. 5	Jan. 2-Apr. 2	176	37.5
Copenhagen	592	Feb. 6-12	do	120	20.3
46 German towns	17,048	Jan. 23-29	Dec. 26-Mar. 26	3,525	20.7
Hamburg	1,111	Jan. 30-Feb. 5	do	142	12.8
Berlin	4,110	Jan. 16-22	do	758	18.4
Breslau	561	Jan. 2-8	Dec. 19-Mar. 19	171	30.5
Magdeburg	297	Feb. 6-12	Dec. 26-Mar. 26	65	21.9
Hanover	426	Feb. 13-19	Jan. 2-Apr. 2	99	23.5
Leipzig	683	Feb. 6-12	do	95	13.9
Dresden	624	do	Dec. 26-Mar. 26	111	17.8
Cologne	711	Jan. 20-Feb. 5	do	154	21.7
Munich	686	Feb. 6-12	do	118	17.2
Netherlands	7,527	Jan. 1-31	Dec. 1-Feb. 28	3,372	44.8
14 Dutch towns	2,438	do	do	584	21.9
Amsterdam	727	do	do	128	17.6
Rotterdam	564	do	do	104	18.4
The Hague	409	do	do	106	26.4
Brussels	835	do	do	114	13.6
Lille	202	Dec. 19-25	Dec. 5-Mar. 5	41	20.3
Paris	2,871	Dec. 22-31	Dec. 1-Feb. 28	508	17.7
Lyon	562	Jan. 1-31	do	99	17.6
Madrid	783	do	do	168	20.2
36 Swiss towns	1,189	Jan. 9-15	Dec. 12-Mar. 12	762	64.1
Geneva	126	Jan. 2-8	do	170	134.9
Dale	141	do	do	112	79.4
Zurich	213	Jan. 9-15	Dec. 12-Mar. 28	91	42.1
Milan	876	Feb. 1-28	Dec. 1-Mar. 28	43	4.9
Genoa	583	do	Dec. 1-Feb. 28	43	7.4
Trieste	249	do	Jan. 1-Mar. 31	29	11.6
Palermo	403	do	do	7	1.7
Prague	725	Jan. 1-31	do	168	14.9
Budapest	961	Jan. 23-29	Jan. 2-Apr. 2	164	17.1
Warsaw	1,015	Jan. 16-22	Dec. 19-Mar. 19	109	10.7
Danzig	226	Jan. 23-29	Dec. 26-Mar. 26	66	24.8
Leningrad	1,614	Feb. 1-28	Dec. 1-Feb. 28	120	7.4

*Influenza.*—The mortality from influenza during the epidemic is shown for a number of European towns in Table 2. The figures are, of course, provisional and, owing to different systems of tabulating deaths when a contributory cause is involved, the mortality in different countries is not strictly comparable; but the data are of

considerable interest, and to some degree indicate the extent and severity of the recent epidemics. In some towns, the inclusion of all deaths attributed to pneumonia in which influenza was a factor would greatly increase the influenza mortality. Probably the data for the United Kingdom, Scandinavia, Germany, the Netherlands, and Switzerland are fairly comparable.

Switzerland appears to have had the highest mortality reported and Geneva was the most seriously affected of the larger towns. Towns in the same country varied widely in the mortality reported. For example, in Glasgow the deaths from influenza during three months of highest incidence numbered 8.5 per 100,000, while in Edinburgh they numbered 28.6. In the 105 English towns the average mortality was 38.3 per 100,000, but in the larger towns the rates varied from 20 per 100,000 to over 60. The average for 46 German towns was 20.7 per 100,000, and for 14 Dutch towns it was 21.9.

The rates in the large cities are not necessarily representative of the smaller towns and rural sections, and, therefore, the extent of the total mortality from influenza is not yet known. In the Netherlands, for which unusually detailed statistics seem to have been available, the epidemic caused the greatest mortality in the small rural districts under 5,000 population.

*Lethargic encephalitis.*—No important outbreaks of encephalitis were reported during the first four months of the current year. In England and Wales the incidence began to diminish in April and was lower than in the corresponding period of the preceding three years; 129 cases were reported during the four weeks ended April 23 as compared with 157 cases during the previous four weeks and 201 cases during the corresponding weeks a year ago. Since the epidemic of 1924 encephalitis has shown less seasonal variation in England than during the years immediately preceding it, and at no time have cases dropped to as low a level as before the 1924 epidemic.

In Denmark 44 cases were reported in the first 3 months of the current year, as compared with 17 and 64 cases, respectively, during the corresponding period of the two preceding years. In Sweden fewer cases were reported in the first quarter of 1927 than for the same period of any of the preceding five years.

In Italy 92 cases were reported in the first 12 weeks of 1927, as compared with 110 in the corresponding period of 1926 and 190 in 1925.

In the United States 167 cases were reported in the first quarter of the current year, the same number as in 1926.

*Epidemic diseases of childhood.*—Table 3 shows the mortality from diphtheria, scarlet fever, measles, and whooping cough in a number of large cities or groups of towns in 1926. With the exception of an

epidemic incidence of scarlet fever in Poland, Germany, and the Netherlands, none of these diseases was unusually prevalent during the year 1926, and, on the whole, the mortality given reflects fairly well the relative importance of these diseases as a cause of death.

TABLE 3.—Mortality from epidemic diseases of childhood in certain towns and cities in 1926

Town	Population (thousands)	Diphtheria		Scarlet fever		Measles		Whooping cough	
		Deaths	Rate per 100,000	Deaths	Rate per 100,000	Deaths	Rate per 100,000	Deaths	Rate per 100,000
106 English towns.....	19,540	1,876	9.6	323	1.7	2,357	12.1	1,940	10.0
16 Scottish towns.....	2,396	299	12.5	199	8.3	653	27.3	287	12.0
21 Irish towns.....	1,203	155	12.9	53	4.4	408	33.9	142	12.2
14 Dutch towns.....	2,436	82	3.4	59	2.4	187	7.7	254	10.4
3 Scandinavian towns.....	1,303	68	5.2	11	.8	85	6.5	105	8.1
46 German towns.....	17,048	582	3.4	287	1.7	442	2.6	1,000	5.9
30 Swiss towns.....	1,189	22	1.9	6	.5	29	2.4	37	3.1
Paris.....	2,871	243	8.5	90	3.1	597	20.8	131	4.6
40 Spanish towns.....	4,249	362	8.9	160	3.7	205	15.3	155	3.6
8 Italian towns.....	3,860	188	4.8	294	7.6	268	6.9	201	5.2
Vienna.....	1,879	60	4.3	35	2.5	9	.6	93	6.6
Budapest.....	961	125	13.0	130	13.5	29	3.0	34	3.5
Prague.....	713	73	10.2	29	4.0	27	3.7	22	3.0
4 Polish towns.....	1,973	231	11.7	830	42.0	43	2.1	38	1.9
Leningrad.....	1,614	150	9.2	652	40.3	473	29.3		
Moscow.....	1,710	206	12.0	894	52.3				
41 Ukrainian towns.....	1,339	188	10.2	1,254	93.1	196	18.6	256	13.0
Alexandria and Cairo.....	1,351	321	23.8	7	.5	973	72.0		
21 Japanese towns.....	8,741	739	8.4	80	.9			1,073	12.3
New York.....	5,971	477	7.9	77	1.2	704	11.8	222	3.7
Mexico City.....	662	24	3.6	30	1.5	16	2.4	180	15.1
Buenos Aires.....	1,932	253	13.0	128	6.6	158	8.2	78	4.0

### CASE RATE, DEATH RATE, AND CASE-FATALITY RATE IN TYPHOID FEVER

A study of certain epidemiological features of typhoid fever, covering 3,980 cases occurring in New Jersey during the period 1920-1924, has recently been completed by the Metropolitan Life Insurance Co., and the report is now in the process of preparation.<sup>1</sup>

In regard to case incidence, the data indicate that the age period of greatest liability to infection with typhoid fever is 10 to 14 years; but the age period 15 to 19 years registered the highest death rate from this disease, while the lowest death rate was recorded for persons under 5 years of age. The typhoid death rate was higher in all age groups between 15 and 55 years than in the age group of maximum incidence—10 to 14 years. The actual danger of fatal termination in typhoid-fever cases, as shown by the case-fatality rates, increased continuously after the age period 5 to 9 years, and was greatest in old age, the period when liability to infection is least.

The case incidence in the cases studied rose from 11.4 per 100,000 population among children under 5 years of age to a maximum of

<sup>1</sup> Statistical Bulletin, May, 1927.

40.1 in the age group 10 to 14 years, and then declined throughout the remainder of the life span.

The minimum case-fatality rate was recorded in the age period 5 to 9 years, although this age group is one of the three highest with respect to the hazard of infection. The case-fatality rate rose with age, reaching a maximum of 50 deaths per 100 cases in old age.

There are marked differences shown in these ratios when considered by sex. In all age groups except 55 to 64 years, typhoid fever occurred more frequently among males than among females in the group of cases studied. Between 15 and 54 years of age the death rate was also higher among males. The case-fatality rate for males, as with the death rate, was lower than that for females under 15 years of age and higher between the ages of 15 and 54. Beyond age 55 and under age 15 the case-fatality rate for females exceeded that for males.

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## COURT DECISIONS RELATING TO PUBLIC HEALTH

*Bovine tuberculosis eradication law held constitutional with exception of one section.*—(Nebraska Supreme Court; State ex rel. Spillman, Atty. Gen., v. Heldt, 213 N. W. 578; decided April 12, 1927.) The title of chapter 7 of the 1925 Nebraska Session Laws read as follows:

An act to provide for the inspection, examination, and testing of cattle for tuberculosis and to establish an area plan for such inspection, examination, and testing within this State by the department of agriculture, when a request has been made therefor by 60 per cent. of the owners representing 51 per cent. of breeding cattle; and to provide for indemnity on cattle condemned and destroyed by order of the department of agriculture on account of tuberculosis; and to repeal chapter 11, Laws of Nebraska for 1923; and to declare an emergency.

Section 1 of the said act provided for the tuberculin testing of cattle within a county upon the presentation, to the department of agriculture, of a petition signed by 60 per cent of the owners representing 51 per cent of the breeding cattle.

Section 9 of the act provided in substance that, where the area plan of bovine tuberculosis eradication had been adopted in the State prior to the act, such work could be continued by the department of agriculture, under the provisions of the act, in each of the counties where a petition, signed by 60 per cent or more of the owners of breeding cattle, was submitted, or could be continued, without further petition by the owners of breeding cattle, where 60 per cent or more of the herds of breeding cattle of such county had been tested.

The State constitution (sec. 14, art. 3) provided:

No bill shall contain more than one subject, and the same shall be clearly expressed in the title.

The supreme court held section 9 to be unconstitutional because its provisions were not included in the title of the act. In passing on this phase of the case, the court said:

\* \* \* The title of the act, among other things, provides for the inspection, examination and testing of cattle for tuberculosis and to establish an area plan for such inspection, examination and testing within the State by the department of agriculture, when a request has been made therefor by 60 per cent. of the owners representing 51 per cent. of the breeding cattle, etc. There is no suggestion in this title that the area plan of inspection is to be in force in any other way than upon the petition of 60 per cent. of the cattle owners representing 51 per cent. of the breeding cattle, whereas under the provisions of section 9, in counties where the area plan has been adopted prior to the passage of the present act, no petition is required, as provided for [in] section 1, before the act becomes operative. Section 9 provides an entirely different method and different conditions under which the act may be effective. Anyone reading the title, especially that portion indicating that the act becomes effective when a request therefor has been made by 60 per cent. of the owners representing 51 per cent. of the breeding cattle, would not be appraised [sic] of the fact that the act might be effective in any other manner. Had the title to the act omitted the clause, "when a request has been made therefor by 60 per cent. of the owners \* \* \* of breeding cattle," it is possible that upon a fair interpretation of the title it would be broad enough to include the subject matter contained in section 9 of the act; but, with the clause included beginning with the word "when," the effect is to limit the scope of the title, rather than to enlarge it, and to carry the idea that it became effective only in that manner.

A reading of the entire act in connection with the title leads one to believe that the subject matter of section 9 is an afterthought, and not germane to the title or the leading thought running through the remainder of the act. We are quite convinced that the provisions of section 9 are not included in the title and are contrary to section 14, art. 3, of our constitution. We are of the view, however, that section 9 was not an inducement to the passage of the act. Without section 9, the act is complete and enforceable and within the fair limits of its title. We hold that section 9 is unconstitutional, but that the remainder of the act is legal and enforceable. \* \* \*

The act was also attacked on the ground that it was in conflict with the State and Federal Constitutions because it provided for the destruction of tuberculous cattle and only partially compensated the owners for the animals destroyed. The court, however, held the act, with the exception of section 9, to be a proper exercise of the police power by the legislature.

*Emmenthaler cheese allowed to be made from slightly skimmed milk.*— (Wisconsin Supreme Court; *State v. Langlade County Creamery Co.*, 213 N. W. 664; decided May 3, 1927.) The filled cheese law (section 352.36 of the Wisconsin statutes) prohibited any person from manufacturing or selling "any cheese manufactured from or by the use of skim milk to which there has been added any fat which is foreign to such milk, or \* \* \* any skimmed-milk cheese or cheese manufactured from milk from which any of the fat originally contained therein has been removed, except such last-mentioned cheese is 10 inches in diameter and 9 inches in height."

Subdivision 9 of section 352.03 of the statutes read in part as follows:

Cheese \* \* \* contains in the water-free substance, not less than 50 per cent. of milk fat; \* \* \* except that Emmenthaler cheese, commonly known as domestic Swiss cheese, shall contain in the water-free substance not less than 43 per cent. of milk fat.

The question presented was whether the above exception in subdivision 9 modified the filled-cheese statute so as to permit some skimming of the milk in the manufacture of Emmenthaler cheese, if the butterfat content was not reduced below the prescribed 43 per cent or whether the exception added another requirement to the filled-cheese statute so that Emmenthaler cheese must not only be made from whole milk, but from whole milk which would produce cheese with not less than 43 per cent of butterfat.

In holding that the making of Emmenthaler cheese from slightly skimmed milk was permitted, the court said:

We therefore hold that subdivision 9 of section 352.03 and section 352.36 of the statutes should be construed together, and that, when so construed, they permit the making of Emmenthaler cheese from milk which has been standardized by the removal of a slight amount of butterfat, provided that the amount removed shall be so slight that the Emmenthaler cheese made from such milk shall never contain less than 43 per cent. of butterfat in the dry matter. The proof also establishes the fact that milk that is standardized—that is, slightly skimmed to give the proper ratio of casein to butterfat—will not produce Emmenthaler cheese, which contains less than 43 per cent. of butterfat in dry matter.

## PUBLIC HEALTH ENGINEERING ABSTRACTS

Chlorine Studies and Some Observations on Taste-Producing Substances in Water, and the Factors Involved in Treatment by the Super- and De-chlorination Method. N. J. Howard and R. E. Thompson. *Journal of the New England Water Works Association*, vol. 40, No. 3, 1926, pp. 276-296. (Abstract by A. S. Bedell.)

Two-thirds of this article are devoted to the Toronto experiments on super-chlorination which appeared in *Water Works (Engineering and Contracting)* for December, 1926. The complete article contains a very interesting historical introduction on tastes and odors in chlorinated water, and a comprehensive bibliography.

It is believed that the chief causes of the medicinal or iodoform taste and odor in water supplies following chlorination are (1) industrial trade wastes, chiefly from gas works or coke ovens; (2) the products of decomposition of organic matter; and (3) those of unknown origin. Reference is made to the effect of atmospheric pollution of water and to the apparent contradictory findings on the relation of ammonia content to taste. Taste in chlorinated water caused by excessive or decomposing organic matter is intensified by decrease in dissolved oxygen, and is probably due to the chemical reduction of taste-producing substances. Tastes of unknown origin seem to have a certain periodicity and seasonal variation in intensity. The waters of the Great Lakes, although normally free from color, low in organic matter, and comparatively hard, are very susceptible to taste.

**Pollution of Water Supplies by Salt Water from Oil Wells.** N. T. Veatch, jr. *Water Works (Engineering and Contracting)*, vol. 65, No. 12, December, 1926, pp. 627, 628. (Abstract by C. C. Ruchhoft.)

A large number of water supplies in Kansas, Oklahoma, and Texas have been polluted by salt water pumped from oil wells. The salt water may be in the oil formations or above or below the oil sand and is often pumped up with the oil, separated from it, and allowed to waste. The amount of salt water produced can be limited by properly setting the string of casings and sealing the water-bearing formations. The amount of salt water produced may be from 1 to 4 barrels per barrel of oil. A sodium chloride content of 100,000 p. p. m. for the water is common, and one 42-gallon barrel will give a distinct saline taste (250 p. p. m.) to 30,600 gallons of fresh water. While the waste of salt water on the surface is the most conspicuous, another phase of the problem is the pollution of originally fresh ground water by dry holes from which the casing has been pulled without proper precaution, and by improperly cased wells. The common method for preventing salt-water pollution is to waste it into salt-water ponds and draw the water from the ponds at high-water stages. A new method which is being tried is to pump the water back through the annular space between the strings of casings into one of the salt-water formations.

**Filter Plant Operation at Centralia, Ill.** R. S. Rankin. *Water Works (Engineering and Contracting)*, vol. 65, No. 12, December, 1926, pp. 593-595. (Abstract by C. C. Ruchhoft.)

The water supply at Centralia, Ill., is taken from a large impounding reservoir and filtered. The filter plant, with a capacity of 3,000,000 gallons per day, includes an aerator, mixing basin, two coagulating basins, four filters, a clear-water reservoir, and a head house containing an office, laboratory, and chemical-handling equipment. The plant has been in operation for a year, and several difficulties in operation have occurred. Several days after the plant had been put into operation, the two low-lift pumps failed to deliver more than a fraction of their rated capacity. It was found that the immediate suction connections to the two pumps had become clogged with turtles, which had been drawn up through holes in the screens on the suction pipe.

The alum dosage at the plant requires very careful control, owing to the low alkalinity of the raw water. Due to free CO<sub>2</sub> in the water, red water trouble was experienced during the early summer. This was remedied by adding lime at the half-way point in the mixing chamber with a dry-feed machine and maintaining a slight normal carbonate alkalinity. Satisfactory results were obtained with one-half grain of alum and two-thirds grain of lime per gallon.

**Chicago's Pure Milk Campaign.** J. J. Lintner, U. S. Department of Agriculture. *Chicago's Health*, vol. 21, No. 15, April 12, 1927, pp. 102-111. (Abstract by I. W. Mendelsohn.)

This is an interesting account of the pure milk program instituted in Chicago, of the fight of Health Commissioner Bundesen for this program, and of the results obtained in the year ending March 28, 1927. This subject is treated under the following sections: Milk from healthy cattle; supervision at source of supply; effective Pasteurization; and improvement in quality of milk.

The results of the campaign are as follows: (1) The requirement that all milk sold in the city must be from healthy cattle was adopted and effectively enforced, without curtailing the supply or increasing the price to the consumer. The present consumption is 1,500,000 quarts daily; (2) improved quality and the further safeguarding of the milk supply at its source have been secured through increased inspection of dairy farms; (3) the proper Pasteurization of all the milk has been secured by correcting defects in milk-plant equipment which were disclosed by a detailed sanitary engineering survey of the 247 milk Pasteurization

plants in the city. Seven new plants have been completed; 9 are under construction; plans have been received for 9 others; 20 plants have been remodeled or enlarged; 29 plants have consolidated or discontinued business; (4) the cooperation of the United States Public Health Service was secured, with the result that its Pasteurizing-equipment testing station is located in Chicago; (5) the quality of the market milk supply as measured by bacterial counts was improved 45 per cent over the preceding year; 9,339 samples of milk were analyzed during the year; (6) the improvement in Chicago's milk supply has evidently contributed toward a marked reduction in deaths of infants under 1 year of age. The records show that there were actually 532 fewer baby deaths during the year than in the preceding year. This is an 11.5 per cent decrease. Deaths from diarrhea and enteritis among children under 2 years of age were reduced 33.2 per cent during the same period, resulting in 274 fewer deaths from this cause.

**Occurrence of *B. Coli* of Intestinal Origin on Hands of Food Handlers.** W. A. Buice, H. C. Sehested, and R. B. Dienst. *Journal of Infectious Diseases*, vol. 40, No. 2, February, 1927, pp. 348-351. (Abstract by William L. Havens.)

This paper presents the results of an actual investigation made in the public eating places of Waco, Tex., to determine the frequency of the occurrence of *B. coli* of intestinal origin on the hands of food handlers in restaurants, cafés, lunch counters, sandwich shops, and soda fountains. The tests used, together with the technical procedures followed, are given in detail. Koser's sodium citrate medium was used for distinguishing the *B. coli* of intestinal origin from that of vegetable origin, since in this medium it appears that the former organisms do not grow while those of nonfecal origin produce a turbidity in the otherwise clear medium.

A total of 337 tests were made on 251 food handlers and the results are tabulated to show the variations among different races, sexes, and ages. *B. coli* of intestinal origin were found present on the hands of food handlers while at work in 8.38 per cent of the tests made.

**Standards of Milk Pasteurization.** C. E. North and W. H. Park, *American Journal of Hygiene*, 1927, vol. VII, p. 147. From Abstracts of Current Public Health Literature, April, 1927, Department of Health of Canada, Ottawa, p. 5.

"This paper has been written in defense of Public Health Bulletin No. 147, United States Public Health Service, to show that criticism of the material contained therein was unwarranted. The authors, it may be said, were associated in the work covered by Bulletin No. 147 with Drs. V. A. Moore, Rosenau, Wadsworth, and Armstrong, so this paper may be considered authoritative.

"The bone of contention centers around the validity of the statement contained in the bulletin that pasteurization of milk is effective if carried out at 142° F. for half an hour, and at that temperature no injury is caused to the physical characters of the milk, such as alteration in natural taste and prevention of separation of the cream—both of which may occur if the milk is heated to 145° F. for 30 minutes. As a matter of fact, it was shown in the bulletin quoted that the tubercle bacillus was killed off in 30 minutes' heating in the pasteurizing machine at 138° F., so that according to the authors 142° F. offers a complete margin of safety.

"In this paper they present data relative to thermal death points of the tubercle bacillus in milk under laboratory conditions in a MacFadyean-Hewlett water bath, and show that the bovine tubercle bacillus is killed off at 136° F. in 30 minutes.

"Further, the writers state that in actual practice with various types of commercial pasteurizers controlled by competent operators 'the temperature can consistently be maintained between 143° and 142° F. with the time accurately controlled for 30 minutes.'

"To uphold the 142° F. limit the writers quote Professor Bang's experiments on young rabbits which were fed milk containing tubercle bacilli, heated for two minutes at 140° F., and resisted infection. So if milk were held for 30 minutes at this temperature one could assume that alimentary canal infection would not occur either, there being afforded a safety margin of exposure of 28 minutes in the processing.

"However, after all is said and done, it appears to the reviewer that, considering the great variation in types of pasteurizing machinery in use, some of which is faulty in mechanical details, as pointed out in Public Health Bulletin No. 147, it would be far safer to hold milk for 30 minutes at 145° C. Until a mechanically satisfactory standardized pasteurizing machine is in general use, a standard of 145° F. for 30 minutes should be adhered to throughout Canada."

**The Frequency of Botulism.** Anon. *Journal of the American Medical Association*, vol. 88, No. 17, Apr. 23, 1927, p. 1321. (Abstract by C. H. Kibbey.)

Reference is made to "a report on outbreaks of botulism from 1922 to 1926" which was published as a "special article" in *The Journal of the American Medical Association*, vol. 86, No. 7, Feb. 13, 1926. This earlier report is especially interesting, inasmuch as 36 out of a total of the 47 outbreaks occurring in that period were due to home-canned foods, and only 11 outbreaks were caused by commercially canned products. Of the home-canned foods, string beans were responsible for 19 outbreaks, corn for 6, asparagus 2, spinach 2, and 1 each to chili sauce, pimento, beef, figs, chicken, mixed pickles, and salmon. Of the commercially canned foods 3 outbreaks were traced to olives, 2 to spinach, 2 to sardines, and 1 each to clam juice, duck paste, peas, and meat. The preserved foods responsible for the majority of outbreaks have been visibly spoiled, although containers may be normal in appearance and the disintegration of contents so slight as to present no abnormal taste or odor. In the eight-year period 1918 to 1925, inclusive, there occurred an average of 13 outbreaks annually. Only four outbreaks occurred in 1926, however, each of which was due to the use of home-canned foods. Of the foods responsible, string beans are given credit for 10 cases with 8 deaths; trout or salmon, 2 cases with 1 death; and asparagus, 1 case with 1 death. All outbreaks in the United States have been reported from western States. The established epidemiological facts indicate that the distribution of the spore of *B. botulinus* in the soils of western States is wide and that the number of outbreaks of botulism may be in direct ratio to this distribution and the safety of home-canning methods used.

**Photographic Records of Bacteriological Findings in Routine Milk Analyses.** Wm. T. Foster, Ph. B., M. S., City Bacteriologist, Easton, Pa. Third Annual Report (1927), Pennsylvania Association of Dairy and Milk Inspectors, pp. 83-87.

"The use of photography in this particular line of endeavor up to the present time has been confined to reproductions of petri dish cultures for special scientific articles, textbook illustrations, lantern slides, etc.

"The value of any scheme of photography that would make possible the records in question depends upon three fundamental principles: First, the system must be practical; second, it must be simple; third, it must be cheap. The use of the ordinary camera is prohibitive because of the fact that it possesses none of these attributes.

"A few years ago the writer discovered a method by which photographic prints of petri dish colonies could be made by the principle of direct contact without the use of a camera. This system does not require additional record cards beyond those already in use in most laboratories, the only difference being in the fact that the reverse side of the card is provided with a photographic emulsion. An apparatus has been devised by the writer for the purpose of making these photographic prints or records. It is possible to make a complete print in

less than one minute, while the cost of the same should not exceed 1 cent. In view of the fact that any laboratory assistant can prepare these cards, due to the simplicity of technique, the element of cost contingent upon the services of a trained photographer is eliminated. The possibilities of this device are more or less unlimited; that is, it could be used for other purposes to good advantage, such as making prints of the fat column in the Babcock test, and in the same manner the percentage of gas in the Smith fermentation tube."

**Studies of the Malaria Problem in Porto Rico.** Anon. *Porto Rico Health Review*, vol. II, No. 8, February, 1927, pp. 25-32. (Abstract by H. A. Johnson.)

This is a part of a report of malaria studies (Paper VIII) carried out in the island during 1924 and 1925 by the International Health Board.

During the summer and fall, larvæ of *A. grabhamii* were found in quantity only in a very few foci. These foci were both fresh and salt water and seemed to occur near pastures, a fact which, it is mentioned, may be of some significance. Early in November, breeding of *A. grabhamii* began to extend from these foci in all directions, although only at the peak of breeding did they appear in the water of higher salt content near the ocean. The gradual replacement of *A. albimanus* by *A. grabhamii* in many of the ditches was complete by January or February. From March on, *A. grabhamii* breeding again decreased in quantity. No attempt is made to explain this cool weather rise of *A. grabhamii* and the corresponding decline of *A. albimanus*.

During October, *A. vestitipennis*, a species hitherto not reported from the island, was found breeding in a small section of the area studied; and in November, breeding of this species had spread rapidly toward the ocean on the north, cutting across the prevailing winds. The distribution and quantity of this species was very limited both locally and over the island; it came to a peak rapidly, and by March had almost disappeared. All three species of anophelines were frequently found breeding in the same ditches.

The association between *A. grabhamii* and *A. vestitipennis* was very marked. Both species seemed to prefer cool, shaded ditches where heavy aquatic grasses were present, although *A. vestitipennis* breeding seemed to precede by a few weeks the peak rise of *A. grabhamii*. *A. vestitipennis* seemed to be less hardy than *A. grabhamii*, and other factors than the character of the water deposits probably influenced breeding.

(Abstractor's note: The abstractor was engaged in this survey and has published an article in *The American Journal of Tropical Medicine*, vol. 6, No. 2, March, 1926, dealing with the occurrence of *A. vestitipennis* in Porto Rico.)

**Mosquito Control in Relation to Impounded Water Supply.** J. A. Le Prince, Senior Sanitary Engineer, United States Public Health Service. *Journal American Water Works Association*, vol. 17, No. 1, January, 1927, pp. 31-36. (Abstract by W. G. Stromquist.)

The importance of consideration being given by engineers to the danger of "building malaria in" is stressed in this paper, with special reference to impounded waters.

A description of the malaria mosquito is given, and instances of malaria outbreaks following the construction of impounding reservoirs are noted.

The following rules are given for the prevention of production of *Anopheles* in impounded reservoirs: (a) When practicable, hold the water about 2 feet or more higher in the nonmosquito season than in summer. Use flashboards, gates, or other regulating devices for water-level control purposes. The object of lowering the water level is to strand flottage along the shore line, to bring any mosquito larvæ present away from vegetation protection and leave them at a clean shore edge where their enemies can get them; also to make the shore line unattractive to mosquitoes; (b) keep the water surface free from flottage; (c) when

new aquatic plants appear, remove the first that come up. Cattails and some other plants multiply rapidly and are expensive to remove if given a good start; (d) in clearing brush, trees, etc., from the lake bed, make a good clean job of clearing in the upper third of all lake inlets. Wave-protected inlets may become important breeding places of malaria-conveying mosquitoes; (e) as mosquito production is generally at its maximum during the first three years after the water is impounded, weekly inspections of the lake may then be necessary; (f) in some instances, collection and removal of flotsam may be facilitated by using booms made of logs or saplings; (g) it is decidedly advisable to start fish hatcheries (for mosquito-destroying fish) several years before water is impounded. It is not possible to overstock the lake with mosquito-destroying fish; (h) to destroy mosquito larvæ we apply oil or larvicides.

— The Cultivation of Rice and the Incidence of Malaria in Italy. G. Giardina, N. Novelli, G. Alessandrini, and G. Sampietro. *La Riscicoltura e la Malaria nelle Zone Riscicole d'Italia*. Rome, 1925. 344 pages. (Abstract by M. A. Barber.)

Malaria in the valley of the Po, formerly severe and widely diffused, has decreased with the improvement in agriculture and with bettered social and sanitary conditions of living. The reduction is most pronounced where the cultivation of rice is most intense. Together with the reduction in the malaria rate there has been a decrease in the death rate from all causes. *Anopheles* are present in enormous numbers, especially *A. maculipennis*, one of the chief malaria vectors of Europe. The authors believe that the improved economic conditions of the people in the rice country and the more abundant and intelligent use of quinine have been large factors in the reduction of malaria. Alessandrini suggests that *Anopheles* bred in the rice fields may be less susceptible to infection by malaria parasites.

(Abstractor's note: We have found a low malaria rate in the presence of large numbers of *A. quadrimaculatus* in certain prairie rice regions of Louisiana and Arkansas. We had no difficulty in infecting rice-field-bred *A. quadrimaculatus* with estivo-autumnal parasites.)

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## POPULATION OF HOSPITALS FOR THE INSANE

Data for December, 1926

Reports for the month of December, 1926, were received from 146 institutions for the care and treatment of the insane.

There was an increase in the number of patients during the month of 255, or 0.13 per cent. The number in the hospitals decreased 0.13 per cent, and the number on parole increased 3.06 per cent.

First admissions constituted 78.92 per cent of the total admitted during the month; readmissions 16.07 per cent, and 5.01 per cent of the total admitted were transfers or not accounted for.

Of the patients discharged, 26.78 per cent were recorded as recovered, 48.80 per cent as improved, 17.24 per cent as unimproved, 4.67 per cent as without psychosis, and 2.50 per cent as otherwise discharged or not accounted for.

There were 1,068 males per thousand females at the close of the month.

The patients on parole on December 31 constituted 8.12 per cent of the total.

During December there were 1,715 deaths of patients of the hospitals reporting, including those on parole, which gives an annual death rate of 97.82 per thousand under treatment.

*Movement of patient population in 146 hospitals for the care of the insane during December, 1926*

Number of institutions included:

Public.....	120
Private.....	26
Total.....	146

Patients on books Dec. 1, 1926:

In hospitals.....	186, 250
On parole.....	15, 943
Total.....	202, 193

Admitted during December:

First admissions.....	3, 340
Readmissions.....	680
Admitted by transfer.....	206
Not accounted for.....	6

Total received during December..... 4, 232

Total on books during December..... 206, 425

Discharged during December:

As recovered.....	556
As improved.....	1, 013
As unimproved.....	358
As without psychosis.....	97
Otherwise discharged.....	43
Not accounted for.....	9

Total discharged during December..... 2, 076

Transferred..... 186

Died..... 1, 715

Total transferred, discharged, and died during December..... 3, 977

Patients on books December 31, 1926:

In hospital.....	186, 017
On parole.....	16, 431
Total.....	202, 448

Male patients..... 104, 552

Female patients..... 97, 896

## DEATHS DURING WEEK ENDED JUNE 11, 1927

Summary of information received by telegraph from industrial insurance companies for week ended June 11, 1927, and corresponding week of 1926. (From the Weekly Health Index, June 16, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 11, 1927	Corresponding week 1926
Policies in force.....	67, 589, 885	64, 704, 922
Number of death claims.....	12, 890	13, 128
Death claims per 1,000 policies in force, annual rate.....	9. 9	10. 6

Deaths from all causes in certain large cities of the United States during the week ended June 11, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, June 16, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended June 11, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended June 11, 1927 <sup>1</sup>
	Total deaths	Death rate <sup>1</sup>		Week ended June 11, 1927	Corresponding week 1926	
Total (65 cities).....	6, 794	12. 1	<sup>2</sup> 12. 5	695	<sup>3</sup> 789	<sup>4</sup> 59
Akron.....	31			1	8	11
Albany <sup>5</sup> .....	46	20. 0	18. 8	4	2	83
Atlanta.....	67			7	10	
White.....	34			2	5	
Colored.....	33	( <sup>6</sup> )		5	5	
Baltimore <sup>5</sup> .....	191	12. 2	12. 6	20	11	62
White.....	146		11. 8	6	7	23
Colored.....	45	( <sup>6</sup> )	17. 1	14	4	218
Birmingham.....	53	12. 9	16. 1	6	9	
White.....	25		13. 9	3	6	
Colored.....	28	( <sup>6</sup> )	19. 5	3	3	
Boston.....	215	14. 1	13. 1	36	28	101
Bridgeport.....	22			1	0	19
Buffalo.....	130	12. 3	15. 2	16	22	67
Cambridge.....	23	9. 7	12. 0	2	3	36
Camden.....	52	12. 5	9. 6	6	3	103
Canton.....	15	6. 9	11. 4	3	2	71
Chicago <sup>5</sup> .....	677	11. 4	10. 5	47	65	41
Cincinnati.....	117	14. 8	15. 2	7	8	44
Cleveland.....	204	10. 8	10. 2	19	30	50
Columbus.....	75	13. 4	13. 0	5	8	47
Dallas.....	43	10. 7	17. 7	4	12	
White.....	30		14. 5	4	10	
Colored.....	13	( <sup>6</sup> )	38. 6	0	2	
Denver.....	62	11. 1	12. 4	4	7	
Des Moines.....	34	11. 9	15. 0	3	5	50
Detroit.....	272	10. 6	13. 3	48	50	76
Duluth.....	14	6. 3	10. 6	2	3	43
El Paso.....	37	16. 9	16. 7	8	13	
Erie.....	22			4	4	78
Fall River <sup>5</sup> .....	33	12. 9	14. 7	2	6	35
Flint.....	17	6. 2	10. 7	1	2	16
Fort Worth.....	27	8. 6	8. 9	3	2	
White.....	22		8. 2	3	2	
Colored.....	5	( <sup>6</sup> )	13. 7	0	0	
Grand Rapids.....	37	12. 1	6. 0	6	0	88
Houston.....	56			5	7	
White.....	36			4	5	
Colored.....	20	( <sup>6</sup> )		1	2	
Indianapolis.....	105	14. 6	14. 8	9	13	71
White.....	86		13. 4	9	6	81
Colored.....	19	( <sup>6</sup> )	24. 9	0	7	0
Jersey City.....	68	11. 0	11. 5	10	9	75
Kansas City, Kans.....	28	12. 5	13. 4	2	5	39
White.....	18		12. 4	2	4	45
Colored.....	10	( <sup>6</sup> )	17. 8	0	1	0
Kansas City, Mo.....	80	10. 9	12. 7	4	9	
Knoxville.....	35	17. 9		6		
White.....	22			4		
Colored.....	13	( <sup>6</sup> )		2		

See footnotes on next page.

*Deaths from all causes in certain large cities of the United States during the week ended June 11, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, June 16, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued*

City	Week ended June 11, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended June 11, 1927 <sup>1</sup>
	Total deaths	Death rate <sup>1</sup>		Week ended June 11, 1927	Corresponding week 1926	
Los Angeles.....	245			28	21	80
Louisville.....	75	12.2	12.2	2	8	17
White.....	63		10.9	2	6	19
Colored.....	12	( <sup>9</sup> )	20.0	0	2	0
Lowell.....	26	12.3	13.7	1	2	19
Lynn.....	21	10.4	11.5	4	2	106
Memphis.....	54	15.7	29.2	6	9	
White.....	26		24.7	5	5	
Colored.....	28	( <sup>9</sup> )	37.2	1	4	
Milwaukee.....	101	9.9	12.8	8	17	37
Minneapolis.....	107	12.6	13.3	5	12	28
Nashville <sup>1</sup> .....	47	17.8	20.6	4	6	
White.....	27		14.4	4	4	
Colored.....	20	( <sup>9</sup> )	36.1	0	2	
New Bedford.....	25	10.9	17.4	5	10	87
New Haven.....	31	8.7	10.9	3	4	42
New Orleans.....	145	17.8	16.2	18	15	
White.....	91		12.3	12	10	
Colored.....	54	( <sup>9</sup> )	27.3	6	5	
New York.....	1,356	11.8	11.7	157	158	65
Bronx borough.....	165	9.3	9.8	21	15	67
Brooklyn borough.....	440	10.1	10.4	56	66	53
Manhattan borough.....	577	16.6	16.0	59	67	69
Queens borough.....	132	8.5	7.3	16	7	68
Richmond borough.....	42	14.9	12.0	5	3	93
Newark, N. J.....	100	11.2	10.0	16	7	79
Oakland.....	49	9.6	9.2	3	6	35
Oklahoma City.....	29			8	3	
Omaha.....	49	11.7	12.8	3	5	33
Paterson.....	30	10.9	10.9	2	6	35
Philadelphia.....	453	11.6	11.3	48	49	64
Pittsburgh.....	177	14.4	14.1	15	24	52
Portland, Ore.....	72			5	2	53
Providence.....	53	9.8	10.2	7	9	59
Richmond.....	58	15.8	13.5	4	3	53
White.....	32		11.3	3	2	61
Colored.....	26	( <sup>9</sup> )	19.0	1	1	38
Rochester.....	79	12.7	16.4	11	10	93
St. Louis.....	194	12.1	12.1	8	12	
St. Paul.....	57	11.9	12.6	1	5	9
Salt Lake City <sup>1</sup> .....	27	10.4	12.5	5	5	76
San Antonio.....	53	13.1	17.6	11	25	
San Diego.....	39	17.7	19.0	3	2	64
San Francisco.....	189	17.1	13.1	7	7	44
Schenectady.....	16	9.0	12.9	6	2	179
Seattle.....	57			3	3	31
Spokane.....	33	15.8	16.3	1	0	25
Springfield, Mass.....	29	10.3	11.9	4	3	62
Syracuse.....	45	11.9	14.7	3	7	39
Tacoma.....	27	13.2	12.3	3	3	71
Toledo.....	65	11.1	11.5	4	5	39
Trenton.....	43	16.4	9.3	8	0	139
Washington, D. O.....	134	12.9	14.6	13	12	75
White.....	83		11.6	7	6	59
Colored.....	51	( <sup>9</sup> )	23.4	6	6	110
Waterbury.....	21			1	2	25
Wilmington, Del.....	29	12.0	12.2	1	3	36
Worcester.....	59	15.8	12.2	3	2	45
Yonkers.....	22	9.6	9.9	2	2	58
Youngstown.....	27	8.3	8.2	7	3	

<sup>1</sup> Annual rate per 1,000 population.

<sup>2</sup> Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

<sup>3</sup> Data for 64 cities.

<sup>4</sup> Data for 60 cities.

<sup>5</sup> Deaths for week ended Friday June 10, 1927.

<sup>6</sup> In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Richmond 32, and Washington, D. C., 25.

# PREVALENCE OF DISEASE

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring*

## UNITED STATES

### CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

#### Reports for Week Ended June 18, 1927

DIPHTHERIA		INFLUENZA	
	Cases		Cases
Alabama.....	24	Alabama.....	20
Arizona.....	3	Arkansas.....	11
Arkansas.....	3	California.....	10
California.....	93	Florida.....	26
Colorado.....	48	Georgia.....	20
Connecticut.....	28	Illinois.....	20
Delaware.....	1	Indiana.....	2
Florida.....	9	Kansas.....	1
Georgia.....	6	Louisiana.....	8
Idaho.....	5	Maryland <sup>1</sup> .....	6
Illinois.....	114	Massachusetts.....	2
Indiana.....	23	Minnesota.....	3
Iowa <sup>1</sup> .....	17	Mississippi.....	11
Kansas.....	3	Missouri <sup>1</sup> .....	1
Louisiana.....	18	Montana.....	1
Maine.....	2	New Jersey.....	5
Maryland <sup>1</sup> .....	50	Oklahoma <sup>4</sup> .....	18
Massachusetts.....	86	Oregon.....	8
Michigan.....	68	Rhode Island.....	1
Minnesota.....	21	South Carolina.....	123
Mississippi.....	6	South Dakota.....	1
Missouri <sup>1</sup> .....	19	Tennessee.....	14
Nebraska.....	11	Texas.....	13
New Jersey.....	121	West Virginia.....	2
New York <sup>1</sup> .....	74	Wisconsin.....	32
North Carolina.....	10		
Oklahoma <sup>4</sup> .....	6		
Oregon.....	7		
Pennsylvania.....	144		
Rhode Island.....	5		
South Carolina.....	4		
South Dakota.....	3		
Tennessee.....	5		
Texas.....	21		
Utah <sup>1</sup> .....	7		
Washington.....	10		
West Virginia.....	7		
Wisconsin.....	31		
Wyoming.....	1		

#### MEASLES

	Cases
Alabama.....	189
Arizona.....	17
Arkansas.....	45
California.....	571
Colorado.....	62
Connecticut.....	55
Delaware.....	2
Florida.....	33
Georgia.....	44
Idaho.....	15
Illinois.....	373

<sup>1</sup> Week ended Friday.

<sup>2</sup> Exclusive of Kansas City.

<sup>3</sup> Exclusive of New York City.

<sup>4</sup> Exclusive of Oklahoma City and Tulsa.

## Reports for Week Ended June 18, 1927—Continued

MEASLES—continued		POLIOMYELITIS—continued	
	Cases		Cases
Indiana.....	69	Connecticut.....	1
Iowa <sup>1</sup> .....	94	Louisiana.....	1
Kansas.....	355	Maryland <sup>1</sup> .....	1
Louisiana.....	50	Massachusetts.....	1
Maine.....	112	Michigan.....	1
Maryland <sup>1</sup> .....	24	Mississippi.....	3
Massachusetts.....	344	New Jersey.....	1
Michigan.....	190	New York <sup>1</sup> .....	1
Minnesota.....	68	Tennessee.....	1
Missouri <sup>1</sup> .....	99		
Montana.....	19	SCARLET FEVER	
Nebraska.....	41	Alabama.....	11
New Jersey.....	48	Arizona.....	2
New Mexico.....	57	California.....	136
New York <sup>1</sup> .....	702	Colorado.....	93
North Carolina.....	1,292	Connecticut.....	56
Oklahoma <sup>4</sup> .....	125	Florida.....	3
Oregon.....	139	Georgia.....	12
Pennsylvania.....	584	Idaho.....	8
Rhode Island.....	4	Illinois.....	180
South Carolina.....	125	Indiana.....	75
South Dakota.....	23	Iowa <sup>1</sup> .....	25
Tennessee.....	37	Kansas.....	45
Texas.....	133	Louisiana.....	4
Utah <sup>1</sup> .....	18	Maine.....	25
Vermont.....	72	Maryland <sup>1</sup> .....	41
Washington.....	478	Massachusetts.....	290
West Virginia.....	132	Michigan.....	197
Wisconsin.....	540	Minnesota.....	80
Wyoming.....	64	Mississippi.....	7
		Missouri <sup>1</sup> .....	33
MENINGOCOCCUS MENINGITIS		Montana.....	14
California.....	7	Nebraska.....	11
Connecticut.....	2	New Jersey.....	212
Florida.....	1	New Mexico.....	12
Idaho.....	1	New York <sup>1</sup> .....	195
Illinois.....	11	North Carolina.....	15
Louisiana.....	1	Oklahoma <sup>4</sup> .....	15
Massachusetts.....	1	Oregon.....	15
Michigan.....	2	Pennsylvania.....	279
Minnesota.....	2	Rhode Island.....	15
Montana.....	1	South Carolina.....	4
New Jersey.....	1	South Dakota.....	10
New York <sup>1</sup> .....	1	Tennessee.....	16
North Carolina.....	1	Texas.....	15
Oklahoma <sup>4</sup> .....	1	Utah <sup>1</sup> .....	14
Oregon.....	4	Vermont.....	5
Pennsylvania.....	2	Washington.....	42
Tennessee.....	2	West Virginia.....	23
Texas.....	1	Wisconsin.....	123
Utah <sup>1</sup> .....	2	Wyoming.....	11
Washington.....	1		
West Virginia.....	2	SMALLPOX	
Wisconsin.....	12	Alabama.....	21
		California.....	13
POLIOMYELITIS		Colorado.....	3
Alabama.....	1	Florida.....	25
Arizona.....	2	Georgia.....	10
Arkansas.....	2	Idaho.....	2
California.....	14	Illinois.....	13
Colorado.....	1	Indiana.....	76

<sup>1</sup> Week ended Friday.<sup>2</sup> Exclusive of Kansas City.<sup>3</sup> Exclusive of New York City.<sup>4</sup> Exclusive of Oklahoma City and Tulsa.

### Reports for Week Ended June 18, 1927—Continued

<b>SMALLPOX—continued</b>	<b>Cases</b>	<b>TYPHOID FEVER—continued</b>	<b>Cases</b>
Iowa <sup>1</sup> .....	29	Georgia.....	49
Kansas.....	14	Idaho.....	1
Louisiana.....	15	Illinois.....	17
Maryland <sup>1</sup> .....	3	Indiana.....	2
Michigan.....	24	Iowa <sup>1</sup> .....	1
Minnesota.....	3	Kansas.....	7
Missouri <sup>1</sup> .....	18	Louisiana.....	34
Montana.....	14	Maine.....	7
Nebraska.....	8	Maryland <sup>1</sup> .....	7
New Jersey.....	1	Massachusetts.....	1
New York <sup>1</sup> .....	1	Michigan.....	8
North Carolina.....	19	Minnesota.....	4
Oklahoma <sup>1</sup> .....	26	Mississippi.....	37
Oregon.....	15	Missouri <sup>1</sup> .....	10
South Carolina.....	8	Nebraska.....	1
South Dakota.....	8	New Jersey.....	7
Tennessee.....	9	New Mexico.....	3
Texas.....	5	New York <sup>1</sup> .....	22
Utah <sup>1</sup> .....	3	North Carolina.....	26
Washington.....	43	Oklahoma <sup>1</sup> .....	20
West Virginia.....	20	Oregon.....	8
Wisconsin.....	18	Pennsylvania.....	24
Wyoming.....	3	South Carolina.....	77
		Tennessee.....	66
		Texas.....	17
		Utah <sup>1</sup> .....	1
		Vermont.....	1
		Washington.....	5
		West Virginia.....	8
		Wisconsin.....	2
<b>TYPHOID FEVER</b>			
Alabama.....	55		
Arkansas.....	23		
California.....	3		
Colorado.....	3		
Connecticut.....	1		
Florida.....	24		

### Reports for Week Ended June 11, 1927

DIPHTHERIA		SMALLPOX	
	Cases		Cases
District of Columbia.....	13	District of Columbia.....	2
North Dakota.....	1		
MEASLES		TYPHOID FEVER	
District of Columbia.....	3	District of Columbia.....	1
North Dakota.....	23		
SCARLET FEVER			
District of Columbia.....	21		
North Dakota.....	16		

\* Exclusive of Kansas City.

**1 Week ended Friday.**

<sup>4</sup> Exclusive of Oklahoma City and Tulsa

<sup>3</sup> Exclusive of New York City.

## SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebro-spinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Polio-myelitis	Scarlet fever	Small-pox	Typhoid fever
<i>April, 1927</i>										
Delaware.....	0	7	2		54			65	0	1
<i>May, 1927</i>										
California.....	23	501	102	1	6,642	5	20	719	120	47
New Jersey.....	11	488	35	1	429		2	1,374	0	12
North Dakota.....	1	12			249		0	140	3	2
South Carolina.....	0	67	2,528	824	913	666	7	28	67	132
Tennessee.....	5	26	194	76	352	93	0	108	68	89

<i>April, 1927</i>		<i>May, 1927</i>	
Delaware:	Cases	Mumps:	Cases
Chicken pox.....	21	California.....	1,029
Mumps.....	9	North Dakota.....	25
Ophthalmia neonatorum.....	1	South Carolina.....	15
		Tennessee.....	62
<i>May, 1927</i>		Ophthalmia neonatorum:	
Chicken pox:		California.....	2
California.....	1,602	New Jersey.....	2
New Jersey.....	1,267	Paratyphoid fever:	
North Dakota.....	30	California.....	3
South Carolina.....	265	South Carolina.....	6
Tennessee.....	85	Tennessee.....	1
Dengue:		Rabies in animals:	
South Carolina.....	35	California.....	25
Dysentery:		South Carolina.....	21
California (amebic).....	2	Septic sore throat:	
California (bacillary).....	1	Tennessee.....	3
New Jersey.....	1	Tetanus:	
Tennessee.....	24	California.....	3
German measles:		Trachoma:	
California.....	431	California.....	15
New Jersey.....	171	New Jersey.....	1
North Dakota.....	4	North Dakota.....	1
Hookworm disease:		Whooping cough:	
South Carolina.....	138	California.....	1,056
Lead poisoning:		New Jersey.....	664
New Jersey.....	1	North Dakota.....	12
Leprosy:		South Carolina.....	661
California.....	3	Tennessee.....	316
Lethargic encephalitis:			
California.....	5		

## GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,600,000. The estimated population of the 92 cities reporting deaths is more than 30,000,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

*Weeks ended June 4, 1927, and June 5, 1926*

	1927	1926	Estimat- ed ex- pectancy
<i>Cases reported</i>			
Diphtheria:			
40 States.....	1,469	1,134	-----
98 cities.....	937	684	791
Measles:			
40 States.....	10,111	17,058	-----
98 cities.....	2,571	5,779	-----
Poliomyelitis:			
40 States.....	23	15	-----
Scarlet fever:			
40 States.....	3,359	3,236	-----
98 cities.....	1,299	1,320	929
Smallpox:			
40 States.....	674	561	-----
98 cities.....	128	88	115
Typhoid fever:			
40 States.....	405	283	-----
98 cities.....	89	54	62
<i>Deaths reported</i>			
Influenza and pneumonia:			
92 cities.....	578	648	-----
Smallpox:			
92 cities.....	0	0	-----

## City reports for week ended June 4, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases re-reported	Diphtheria		Influenza		Measles, cases re-reported	Mumps, cases re-reported	Pneumonia, deaths re-reported
			Cases, estimated expectancy	Cases re-reported	Cases re-reported	Deaths re-reported			
NEW ENGLAND									
Maine:									
Portland	75,333	1	1	0	1	0	1	0	3
New Hampshire:									
Concord	22,546	0	0	0	0	0	1	0	0
Nashua	29,723	0	1	0	0	0	0	2	2
Vermont:									
Barre	10,008	0	0	0	0	0	1	1	0
Burlington	24,039	0	0	0	0	0	21	0	1
Massachusetts:									
Boston	779,620	56	46	35	2	1	124	58	20
Fall River	128,993	7	3	3	0	0	4	1	3
Springfield	142,965	14	2	9	0	0	0	9	1
Worcester	190,757	24	3	2	2	0	0	3	7
Rhode Island:									
Pawtucket	69,760	0	1	0	0	0	0	1	2
Providence	267,918	0	6	7	0	0	1	0	7
Connecticut:									
Bridgeport	(1)	2	5	7	0	0	3	0	3
Hartford	160,197	3	5	5	0	0	0	5	3
New Haven	178,927	21	2	1	0	0	0	1	1
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	22	8	11		1	14	19	9
New York	5,873,358	275	226	338	12	10	81	189	138
Rochester	316,786	11	9	19		0	9	9	4
Syracuse	182,003	27	5	0		0	248	9	6
New Jersey:									
Camden	128,642	4	4	14	0	0	1	1	4
Newark	452,513	96	12	10	1	0	12	80	6
Trenton	132,020	5	3	5	0	0	0	1	2
Pennsylvania:									
Philadelphia	1,979,364	89	62	66		7	37	145	30
Pittsburgh	631,563	41	14	22		0	50	10	17
Reading	112,707	3	2	0		0	90	25	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	14	7	3	0	0	6	6	4
Cleveland	936,483	105	18	33	1	1	2	71	17
Columbus	279,836	17	3	2	0	1	0	0	7
Toledo	287,380	63	4	1	0	0	32	4	5
Indiana:									
Fort Wayne	97,846	5	2	4	5	0	0	0	2
Indianapolis	353,819	19	4	5	0	0	8	20	7
South Bend	80,091	0	1	1	0	0	5	0	0
Terre Haute	71,071	0	1	1	0	0	10	0	1
Illinois:									
Chicago	2,995,239	78	77	78	3	3	102	132	47
Peoria	81,564	7	1	0	0	0	2	1	2
Springfield	63,923	5	0	2	1	1	2	1	2

<sup>1</sup> No estimate made.

## City reports for week ended June 4, 1927—Continued

Division, State, and city	Population July 1, 1923, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Michigan:									
Detroit.....	1,245,824	46	44	44	3	0	11	94	21
Flint.....	130,316	15	3	1	0	0	29	1	5
Grand Rapids.....	153,698	7	2	1	0	0	31	2	0
Wisconsin:									
Kenosha.....	50,891	19	0	0	0	0	2	37	0
Madison.....	46,385	0	0	0	0	0	0	0	0
Milwaukee.....	509,192	90	12	9	1	0	183	95	8
Racine.....	67,707	12	1	1	0	0	5	12	1
Superior.....	39,671	0	0	0	0	0	0	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	110,502	12	0	0	0	0	9	0	1
Minneapolis.....	425,435	113	14	5	0	0	5	2	4
St. Paul.....	246,001	40	13	4	0	2	17	0	4
Iowa:									
Davenport.....	52,469	1	1	0	0	0	2	1	0
Sioux City.....	76,411	13	0	1	0	0	40	6	0
Waterloo.....	36,771	0	0	0	0	0	0	1	0
Missouri:									
Kansas City.....	367,481	10	5	1	0	0	41	4	12
St. Joseph.....	78,342	0	0	0	0	0	16	0	0
St. Louis.....	821,543	9	37	27	0	1	23	66	0
North Dakota:									
Fargo.....	26,403	0	0	0	0	0	4	0	0
Grand Forks.....	14,811	0	0	0	0	0	0	0	0
South Dakota:									
Aberdeen.....	15,036	0	0	0	0	0	4	0	0
Nebraska:									
Lincoln.....	60,941	8	0	0	0	0	51	8	0
Omaha.....	211,768	2	3	2	0	0	12	7	6
Kansas:									
Topeka.....	55,411	5	1	0	0	0	49	0	0
Wichita.....	88,367	8	1	1	0	0	16	0	1
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	122,049	2	1	3	0	0	1	1	1
Maryland:									
Baltimore.....	796,296	64	17	43	8	2	12	12	26
Cumberland.....	33,741	1	0	0	2	1	3	0	0
Frederick.....	12,035	0	0	0	0	0	0	0	0
District of Columbia:									
Washington.....	497,906	20	9	16	2	2	4	0	4
Virginia:									
Lynchburg.....	30,395	7	0	0	0	1	8	2	0
Norfolk.....	( <sup>1</sup> )	0	0	0	0	0	0	0	0
Richmond.....	186,403	3	0	3	0	0	61	1	6
Roanoke.....	58,208	3	1	1	0	0	1	0	1
West Virginia:									
Charleston.....	49,019	1	0	0	0	1	9	0	1
Wheeling.....	56,208	9	0	0	0	0	7	0	2
North Carolina:									
Raleigh.....	30,371	0	0	0	0	0	74	0	0
Wilmington.....	37,061	0	0	0	0	0	37	3	0
Winston-Salem.....	69,031	2	0	1	0	0	173	24	3
South Carolina:									
Charleston.....	73,125	0	0	0	14	0	3	0	2
Columbia.....	41,226	7	0	1	0	0	27	2	2
Greenville.....	27,311	0	0	0	0	0	0	1	2
Georgia:									
Atlanta.....	( <sup>1</sup> )	2	1	1	10	2	5	3	4
Brunswick.....	16,809	0	0	0	0	0	0	8	1
Savannah.....	93,134	0	0	0	1	0	11	0	2
Florida:									
Miami.....	69,754	3	4	2	1	0	2	0	0
St. Petersburg.....	26,847	0	0	0	0	0	0	0	1
Tampa.....	94,743	0	0	1	0	0	29	0	1

<sup>1</sup> No estimate made.

## City reports for week ended June, 4, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	58, 309		0						
Louisville.....	305, 965	6	3	1	0	0	2	10	3
Tennessee:									
Memphis.....	174, 522	5	1	0	0	0	14	0	2
Nashville.....	136, 220	1	0	0	0	0	0	1	3
Alabama:									
Birmingham.....	205, 670	10	0	10	5	1	53	8	1
Mobile.....	65, 965	0	0	0	0	0	4	0	0
Montgomery.....	46, 461	0	0	0	0	0	2	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	31, 642	0	0	0	0		5	1	
Little Rock.....	74, 216	2	0	0	0	0	14	0	0
Louisiana:									
New Orleans.....	414, 493	0	6	5	5	3	10	0	0
Shreveport.....	57, 867	1	1	0	0	0	6	3	0
Oklahoma:									
Oklahoma City.....	(1)	2	1	2	6	0	7	0	2
Tulsa.....	124, 478	5		0	0		8	3	
Texas:									
Dallas.....	194, 450		2	2	0	0	71		2
Galveston.....	43, 375	0	0	0	0	0	0	0	0
Houston.....	164, 964	0	2	3	0	0	2	0	2
San Antonio.....	198, 069	0	1	6	0	1	12	0	6
MOUNTAIN									
Montana:									
Billings.....	17, 971	7	0	0	0	0	1	0	0
Great Falls.....	29, 843	12	0	0	0	0	9	3	0
Helena.....	12, 037	0	0	0	0	0	0	0	0
Missoula.....	12, 668	1	0	0	0	0	0	0	0
Idaho:									
Boise.....	23, 042	0	0	0	0	0	0	0	0
Colorado:									
Denver.....	280, 911	11	10	7		0	16	2	3
Pueblo.....	43, 787	6	1	2	0	0	41	0	3
New Mexico:									
Albuquerque.....	21, 000	0	1	0	0	0	3	0	0
Utah:									
Salt Lake City.....	130, 949	34	3	11	0	0	2	0	2
Nevada:									
Reno.....	12, 665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	(1)	12	4	1	0		187	25	
Spokane.....	108, 897	3	2	1	0		12	0	
Tacoma.....	104, 455	9	1	1	0	0	75	1	4
Oregon:									
Portland.....	282, 383	6	5	5	0	2	139	8	2
California:									
Los Angeles.....	(1)	29	36	31	6	0	94	12	17
Sacramento.....	72, 200	0	3	1	0	0	6	3	3
San Francisco.....	557, 530	45	18	14	0	1	45	57	4

\* No estimate made.

## City reports for week ended June 4, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	2	2	0	0	0	0	1	1	0	1	20
New Hampshire:											
Concord.....	0	1	0	0	0	0	0	0	0	0	9
Nashua.....	1	0	0	0	0	0	0	0	0	2	8
Vermont:											
Barre.....	1	0	0	0	0	0	0	0	0	0	2
Burlington.....	0	4	1	0	0	0	0	0	0	0	0
Massachusetts:											
Boston.....	47	82	0	0	0	13	2	2	0	10	231
Fall River.....	3	4	0	0	0	2	1	1	0	4	28
Springfield.....	5	5	0	0	0	1	0	0	0	4	25
Worcester.....	7	4	0	0	0	4	0	0	0	8	54
Rhode Island:											
Pawtucket.....	1	0	0	0	0	1	0	0	0	0	12
Providence.....	6	9	0	0	0	3	0	0	0	5	65
Connecticut:											
Bridgeport.....	8	6	0	0	0	1	0	0	0	0	24
Hartford.....	3	7	0	0	0	2	0	0	0	3	35
New Haven.....	5	4	0	0	0	0	1	0	0	1	23
MIDDLE ATLANTIC											
New York:											
Buffalo.....	17	19	0	0	0	11	0	0	0	10	145
New York.....	193	37	0	0	0	100	10	6	0	146	1,333
Rochester.....	11	6	0	0	0	5	0	4	0	3	65
Syracuse.....	7	2	0	0	0	0	0	0	0	10	42
New Jersey:											
Camden.....	5	4	0	0	0	2	0	0	0	0	32
Newark.....	18	23	1	0	0	8	1	0	0	27	89
Trenton.....	2	1	0	0	0	4	1	0	0	0	33
Pennsylvania:											
Philadelphia.....	71	82	1	0	0	30	4	0	0	22	422
Pittsburgh.....	28	11	0	0	0	17	1	1	1	7	183
Reading.....	2	0	0	0	0	1	0	0	0	6	32
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	11	18	3	1	0	9	0	1	1	0	114
Cleveland.....	26	23	0	0	0	20	1	0	1	26	172
Columbus.....	8	17	2	0	0	5	0	0	0	21	73
Toledo.....	9	11	1	0	0	3	0	0	0	22	70
Indiana:											
Fort Wayne.....	2	1	1	4	0	1	0	0	0	6	33
Indianapolis.....	9	14	11	40	0	2	0	1	0	6	74
South Bend.....	2	3	1	0	0	0	0	0	0	2	9
Terre Haute.....	2	0	1	2	0	0	0	0	0	2	15
Illinois:											
Chicago.....	94	86	2	1	0	49	3	2	0	90	652
Peoria.....	2	2	1	0	0	0	0	0	0	4	21
Springfield.....	2	4	1	0	0	1	1	2	0	0	21
Michigan:											
Detroit.....	61	79	2	0	0	25	3	5	0	66	268
Flint.....	4	28	1	0	0	4	0	0	0	1	31
Grand Rapids.....	5	6	1	0	0	0	0	0	1	4	26
Wisconsin:											
Kenosha.....	1	5	2	0	0	0	0	0	0	3	9
Madison.....	2	—	0	—	—	—	—	—	—	—	—
Milwaukee.....	17	34	1	0	0	7	0	0	0	28	127
Racine.....	4	0	1	1	0	1	0	0	0	11	8
Superior.....	2	0	2	0	0	0	0	0	0	0	8

<sup>1</sup> Pulmonary tuberculosis only.

## City reports for week ended June 4, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	5	11	2	0	0	2	0	0	0	4	22
Minneapolis.....	28	43	8	1	0	9	1	5	0	3	76
St. Paul.....	20	18	4	0	0	7	0	0	0	4	48
Iowa:											
Davenport.....	0	2	4	0			0	0		0	
Sioux City.....	2	1	2	4			0	0		4	
Waterloo.....	2	2	0	0			0	0		2	
Missouri:											
Kansas City.....	6	9	0	3	0	9	0	0	0	12	105
St. Joseph.....	1	1	0	1	0	2	1	0	0	0	23
St. Louis.....	25	23	3	1	0	10	2	0	0	51	196
North Dakota:											
Fargo.....	0	2	0	0	0	0	0	0	0	0	3
Grand Forks.....	0	1	0	0			0	0		0	
South Dakota:											
Aberdeen.....	3	1	0	0			0	0		0	
Nebraska:											
Lincoln.....	1	2	0	1	0	0	0	0	0	0	7
Omaha.....	3	4	6	2	0	0	0	0	0	1	54
Kansas:											
Topeka.....	2	3	1	0	0	1	0	1	0	10	10
Wichita.....	1	2	3	0	0	1	0	0	0	0	23
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	4	3	0	0	0	1	0	0	0	0	22
Maryland:											
Baltimore.....	27	16	0	0	0	22	3	2	0	45	179
Cumberland.....	1	1	0	0	0	1	0	0	0	0	5
Frederick.....	0	1	0	0	0	0	0	0	0	0	4
District of Colum- bia:											
Washington.....	16	10	2	2	0	9	1	1	0	10	118
Virginia:											
Lynchburg.....	1	0	0	0	0	3	0	0	0	1	17
Norfolk.....	1		1				0				
Richmond.....	2	4	1	0	0	5	1	1	0	0	45
Roanoke.....	0	1	1	7	0	2	0	0	0	1	11
West Virginia:											
Charleston.....	1	0	0	0	0	1	0	0	1	8	16
Wheeling.....	2	4	0	0	0	1	0	0	0	0	18
North Carolina:											
Raleigh.....	0	0	0	0	0	0	0	0	0	19	11
Wilmington.....	0	0	0	0	0	0	0	0	0	2	9
Winston-Salem.....	0	0	2	1	0	4	1	0	0	32	24
South Carolina:											
Charleston.....	0	0	0	0	0	4	0	1	0	0	37
Columbia.....	0	0	0	0		1	1	1		13	14
Greenville.....	0	0	1	2	0	0	1	0	0	2	5
Georgia:											
Atlanta.....	3	1	5	5	0	3	1	1	1	3	92
Brunswick.....	0	0	0	0	0	0	0	1	1	1	5
Savannah.....	0	0	1	0	0	1	1	5	0	4	35
Florida:											
Miami.....	0	0		0	0	0	2	1	0	14	17
St. Petersburg.....	0		0		0	1	0		0		12
Tampa.....	0	0	0	1	0	2	0	3	0	0	29
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	1		0				0				
Louisville.....	5	13	1	0	0	2	1	0	0	11	67
Tennessee:											
Memphis.....	4	6	1	11	0	5	1	3	0	10	52
Nashville.....	3	1	1	1	0	5	1	4	0	4	48
Alabama:											
Birmingham.....	1	0	6	5	0	8	2	1	0	25	71
Mobile.....	0	0	1	0	0	1	1	1	0	0	24
Montgomery.....	0	0	0	1	0	0	0	3	0	0	

## City reports for week ended June 4, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expec- tancy	Cases re- ported	Cases, esti- mated expec- tancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expec- tancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	-----	-----	0	2	-----	1	-----
Little Rock.....	0	0	0	0	0	4	0	1	0	0	-----
Louisiana:											
New Orleans.....	3	3	1	0	0	14	3	4	1	15	145
Shreveport.....	0	0	1	1	0	2	0	0	0	4	28
Oklahoma:											
Oklahoma City.....	1	0	3	0	0	0	1	0	0	3	-----
Tulsa.....	-----	3	-----	0	-----	-----	-----	1	-----	2	-----
Texas:											
Dallas.....	2	1	3	1	0	5	1	1	0	-----	56
Galveston.....	0	0	1	0	0	3	1	0	0	0	17
Houston.....	1	1	1	2	0	3	1	0	0	0	69
San Antonio.....	1	0	0	0	0	6	1	1	1	0	76
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	0	0	2	3
Great Falls.....	1	4	1	0	0	0	0	1	0	0	9
Helena.....	0	0	0	1	0	0	0	0	0	0	-----
Missoula.....	0	1	1	0	0	0	0	0	0	0	-----
Idaho:											
Boise.....	0	1	1	0	0	0	0	0	0	0	5
Colorado:											
Denver.....	10	42	1	0	0	8	0	0	0	0	80
Pueblo.....	1	34	0	0	0	1	0	0	0	0	13
New Mexico:											
Albuquerque.....	1	2	0	0	0	7	0	0	0	0	14
Utah:											
Salt Lake City.....	2	5	0	3	0	1	0	0	0	15	22
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	0
PACIFIC											
Washington:											
Seattle.....	10	15	4	0	-----	-----	1	0	-----	29	-----
Spokane.....	4	7	3	8	-----	-----	0	0	-----	1	-----
Tacoma.....	3	2	3	11	0	0	0	5	0	0	16
Oregon:											
Portland.....	7	3	6	1	0	3	0	0	0	13	68
California:											
Los Angeles.....	21	21	7	0	0	24	2	2	1	11	243
Sacramento.....	1	3	1	2	0	0	1	2	1	2	24
San Francisco.....	12	23	2	2	6	14	1	1	0	30	171

## City reports for week ended June 4, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
<b>NEW ENGLAND</b>									
Massachusetts:									
Boston.....	0	0	1	0	0	0	0	1	0
Worcester.....	0	0	1	0	0	0	0	0	0
Connecticut: <sup>1</sup>									
Bridgeport.....	0	0	0	1	0	0	0	0	0
<b>MIDDLE ATLANTIC</b>									
New York:									
New York.....	5	3	5	1	0	0	1	0	0
New Jersey:									
Newark.....	0	0	1	0	0	0	1	0	0
Pennsylvania:									
Philadelphia.....	1	0	1	0	0	0	0	0	0
<b>EAST NORTH CENTRAL</b>									
Ohio:									
Cincinnati.....	0	0	0	2	0	0	0	0	0
Columbus.....	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago.....	6	2	1	0	0	0	0	1	0
Michigan:									
Detroit.....	0	0	1	0	0	0	0	0	0
Flint.....	0	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	4	2	1	1	0	0	0	0	0
<b>WEST NORTH CENTRAL</b>									
Minnesota:									
Duluth.....	2	1	0	0	0	0	0	0	0
Minneapolis.....	1	1	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	1	1	0	0	0	0	0	0	0
Nebraska:									
Lincoln.....	0	0	0	0	0	0	0	1	0
Kansas:									
Topeka.....	0	0	1	1	0	0	0	0	0
Wichita.....	0	1	0	0	0	0	0	0	0
<b>SOUTH ATLANTIC</b>									
Maryland:									
Frederick.....	0	1	0	0	0	0	0	0	0
Virginia:									
Richmond.....	0	0	0	1	0	0	0	0	0
West Virginia:									
Charleston.....	0	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Columbia.....	0	0	0	0	0	1	0	0	0
Greenville.....	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	1	2	0	0	0	0	0	0	0
<b>EAST SOUTH CENTRAL</b>									
Kentucky:									
Louisville.....	0	0	1	0	0	0	0	0	0
Tennessee:									
Memphis.....	1	1	0	0	0	0	0	0	0
Nashville.....	0	0	0	0	0	1	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	2	0	0	0	0
Mobile.....	0		0	0	1	0	0	0	0

<sup>1</sup> Typhus fever: 1 case at New Haven, Conn.

*City reports for week ended June 4, 1927—Continued*

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
<b>WEST SOUTH CENTRAL</b>									
Arkansas:									
Little Rock.....	0	0	0	0	1	2	0	0	0
Louisiana:									
New Orleans.....	0	0	0	0	0	0	0	1	0
Shreveport.....	0	0	0	0	0	2	0	0	0
Oklahoma:									
Oklahoma City.....	0	0	0	0	0	0	0	1	0
Texas:									
Dallas.....	0	0	0	0	0	3	0	0	0
Galveston.....	0	0	0	0	0	1	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0
<b>MOUNTAIN</b>									
Utah:									
Salt Lake City.....	1	0	0	0	0	0	0	0	0
<b>PACIFIC</b>									
Washington:									
Seattle.....	1		0		0		0	0	
Spokane.....	2		0		0		0	0	
Oregon:									
Portland.....	0	0	0	1	0	0	0	0	0
California:									
Los Angeles.....	1	0	0	0	0	0	0	2	0
San Francisco.....	1	1	0	0	0	0	0	1	0

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended June 4, 1927, compared with those for a like period ended June 5, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

*Summary of weekly reports from cities, May 1 to June 4, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926<sup>1</sup>*

## DIPHTHERIA CASE RATES

	Week ended—									
	May 8, 1926	May 7, 1927	May 15, 1926	May 14, 1927	May 22, 1926	May 21, 1927	May 29, 1926	May 28, 1927	June 5, 1926	June 4, 1927
101 cities .....	115	183	121	175	118	<sup>2</sup> 174	122	<sup>2</sup> 171	117	<sup>2</sup> 159
New England .....	106	130	87	104	78	153	80	160	78	160
Middle Atlantic .....	126	273	135	282	138	268	145	234	135	235
East North Central .....	89	160	96	132	117	<sup>2</sup> 161	108	<sup>2</sup> 146	119	<sup>2</sup> 124
West North Central .....	198	131	202	135	147	105	165	91	210	81
South Atlantic .....	75	120	76	116	71	111	95	145	47	<sup>4</sup> 135
East South Central .....	62	76	52	82	36	36	41	97	16	<sup>5</sup> 59
West South Central .....	60	143	82	113	47	50	64	84	56	67
Mountain .....	146	153	182	99	128	108	128	144	109	180
Pacific .....	177	110	174	94	163	105	158	196	131	128

## MEASLES CASE RATES

101 cities .....	1,713	699	1,565	605	1,433	<sup>2</sup> 620	1,282	<sup>2</sup> 550	1,014	<sup>2</sup> 437
New England .....	1,710	269	1,196	346	1,073	416	1,061	434	726	313
Middle Atlantic .....	1,432	213	1,200	298	1,135	324	957	366	752	<sup>2</sup> 282
East North Central .....	1,456	568	1,373	453	1,374	<sup>2</sup> 487	1,254	<sup>2</sup> 370	1,104	<sup>2</sup> 325
West North Central .....	4,511	1,527	4,181	935	3,465	955	3,086	655	2,231	461
South Atlantic .....	1,926	1,583	1,917	1,553	1,645	1,544	1,529	1,364	1,203	<sup>1</sup> 898
East South Central .....	3,237	520	3,449	346	2,989	357	2,368	321	1,655	<sup>3</sup> 405
West South Central .....	125	889	155	575	142	629	112	466	86	503
Mountain .....	884	1,636	1,394	1,304	1,385	908	1,303	1,052	1,249	620
Pacific .....	656	1,605	675	1,262	688	1,217	798	1,063	691	1,097

## SCARLET FEVER CASE RATES

101 cities .....	294	380	326	341	308	<sup>2</sup> 310	274	<sup>2</sup> 295	231	<sup>2</sup> 221
New England .....	222	392	311	439	288	432	257	365	248	288
Middle Atlantic .....	217	541	249	475	256	416	212	364	209	256
East North Central .....	310	283	356	290	342	<sup>2</sup> 268	339	<sup>2</sup> 302	248	<sup>2</sup> 210
West North Central .....	940	272	871	320	720	288	700	246	419	236
South Atlantic .....	175	129	220	149	194	101	158	121	188	<sup>4</sup> 79
East South Central .....	186	183	202	153	176	132	171	138	124	<sup>5</sup> 108
West South Central .....	176	59	155	21	172	34	116	25	163	21
Mountain .....	137	1,007	246	728	173	969	100	899	219	782
Pacific .....	206	212	257	202	292	168	179	209	169	186

## SMALLPOX CASE RATES

101 cities .....	26	22	26	21	19	<sup>2</sup> 26	19	<sup>2</sup> 29	15	<sup>2</sup> 22
New England .....	0	0	0	0	0	0	0	0	0	0
Middle Atlantic .....	0	0	0	0	0	0	1	0	0	0
East North Central .....	22	28	20	20	18	<sup>2</sup> 38	13	<sup>2</sup> 50	9	<sup>3</sup> 33
West North Central .....	58	34	36	26	28	48	44	42	40	24
South Atlantic .....	30	36	39	38	24	36	28	40	34	<sup>3</sup> 35
East South Central .....	72	56	119	58	62	76	62	61	83	<sup>5</sup> 97
West South Central .....	159	34	116	59	95	17	99	29	43	17
Mountain .....	36	36	55	9	18	45	36	27	27	36
Pacific .....	56	73	67	92	51	71	32	84	24	60

<sup>1</sup> The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.

<sup>2</sup> Madison, Wis., not included.

<sup>3</sup> Madison, Wis., Norfolk, Va., and Covington, Ky., not included.

<sup>4</sup> Norfolk, Va., not included.

<sup>5</sup> Covington, Ky., not included.

Summary of weekly reports from cities, May 1 to June 4, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

## TYPHOID FEVER CASE RATES

	Week ended—									
	May 8, 1926	May 7, 1927	May 15, 1926	May 14, 1927	May 22, 1926	May 21, 1927	May 29, 1926	May 28, 1927	June 5, 1926	June 4, 1927
101 cities.....	8	9	8	8	11	10	10	9	9	14
New England.....	9	2	0	5	9	5	7	9	0	9
Middle Atlantic.....	7	10	10	5	7	6	5	6	9	5
East North Central.....	4	6	5	3	5	5	9	7	5	17
West North Central.....	6	2	2	2	8	6	4	4	8	12
South Atlantic.....	13	18	4	9	32	13	26	18	32	31
East South Central.....	16	15	0	66	10	56	31	31	10	65
West South Central.....	17	38	43	25	26	46	13	25	9	38
Mountain.....	0	18	9	9	9	9	0	18	9	9
Pacific.....	11	3	8	10	19	10	11	8	8	26

## INFLUENZA DEATH RATES

95 cities.....	25	13	16	13	15	12	12	9	8	17
New England.....	14	5	5	14	12	14	9	9	2	2
Middle Atlantic.....	22	15	17	14	16	10	11	8	6	9
East North Central.....	29	7	18	10	18	12	11	14	8	14
West North Central.....	13	8	6	4	8	8	13	12	8	6
South Atlantic.....	19	17	17	24	11	11	11	13	8	18
East South Central.....	98	41	31	31	36	41	26	25	36	15
West South Central.....	44	13	26	13	22	28	9	26	13	17
Mountain.....	18	9	18	9	0	9	9	9	18	0
Pacific.....	4	21	4	7	4	0	11	3	4	3

## PNEUMONIA DEATH RATES

95 cities.....	163	131	150	123	141	109	119	100	105	93
New England.....	170	139	165	144	144	100	123	144	116	116
Middle Atlantic.....	175	167	166	151	173	119	145	116	131	108
East North Central.....	178	122	147	99	133	104	106	86	98	80
West North Central.....	122	69	82	71	95	58	84	87	51	58
South Atlantic.....	170	114	183	125	149	145	110	86	79	110
East South Central.....	222	143	181	122	171	107	171	61	124	49
West South Central.....	110	112	128	134	84	103	102	90	93	82
Mountain.....	82	99	91	54	82	63	91	36	146	72
Pacific.....	78	79	92	114	53	121	64	100	67	97

<sup>1</sup> Madison, Wis., not included.

<sup>2</sup> Madison, Wis., Norfolk, Va., and Covington, Ky., not included.

<sup>3</sup> Norfolk, Va., not included.

<sup>4</sup> Covington, Ky., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total.....	101	95	36,438,500	36,960,600	29,778,400	30,289,800
New England.....	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic.....	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central.....	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central.....	12	10	2,585,500	2,626,000	2,470,000	2,530,000
South Atlantic.....	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central.....	7	7	1,008,300	1,028,500	1,008,300	1,023,500
West South Central.....	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain.....	9	9	572,100	580,000	572,100	580,000
Pacific.....	6	4	1,946,400	1,991,700	1,475,300	1,512,800

## FOREIGN AND INSULAR

### CHOLERA ON VESSEL

*Steamship "Morvada"*—At Suez from Calcutta, via way ports—May 2-23, 1927.—The British mail steamship *Morvada*, from Calcutta May 2, Madras May 6, Colombo May 10, and Aden May 19, 1927, arrived at Suez May 23 with history of having landed a case of cholera at Madras. Eighteen contacts—crew and passengers—were vaccinated.

### THE FAR EAST

*Report for week ended May 21, 1927.*—The following report for the week ended May 21, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Small-pox		Maritime towns	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo.....	3	3	0	0	0	0	Siam: Bangkok.....	0	0	5	3	1	1
British India:							French Indo-China:						
Karachi.....	0	0	0	0	4	1	Saigon and Cholon.....	0	0	16	12	0	0
Bombay.....	23	0	0	0	51	35	Haiphong.....	0	0	157	149	0	0
Cochin.....	0	0	0	0	1	0	Tourane.....	0	0	5	1	0	0
Vizagapatam.....	0	0	0	2	2	1	China: Canton.....	0	0	0	0	10	2
Calcutta.....	0	0	49	55	41		Hong Kong.....	0	0	0	0	5	5
Nagapatam.....	0	0	18	1	0		Kwantung: Dairen.....	0	0	0	0	1	0
Rangoon.....	2		1	17	4								

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

#### ASIA

*Arabia*.—Jeddah, Perim, Aden.  
*Iraq*.—Basra.  
*Persia*.—Mohammerah, Bender-Abbas, Bushire, Lingah.  
*British India*.—Chittagong, Tuticorin, Madras, Moumein, Bassein.  
*Portuguese India*.—Nova Goa.  
*Federated Malay States*.—Port Swettenham.  
*Straits Settlements*.—Penang, Singapore.  
*Dutch East Indies*.—Batavia, Sabang, Belawan-Deli, Pontianak, Semarang, Menado, Banjarmasin, Cheribon, Makassar, Balikpapan, Tarakan, Padang, Surabaya, Samarinda.  
*Sarawak*.—Kuching.  
*British North Borneo*.—Sandakan, Jesselton, Kudat, Tawao.  
*Portuguese Timor*.—Dilly.

*Philippine Islands*.—Manila, Iloilo, Jolo, Cebu, Zamboanga.  
*China*.—Amoy, Tientsin, Shanghai.  
*Macao*.  
*Formosa*.—Keelung, Takao.  
*Chosen*.—Chemulpo, Fusan.  
*Manchuria*.—Yingkow, Antung, Changchun, Harbin, Mukden.  
*Kwangtung*.—Port Arthur.  
*Japan*.—Yokohama, Nagasaki, Niigata, Shimodake, Moji, Tsuruga, Kobe, Osaka, Hakodate.

#### AUSTRALASIA AND OCEANIA

*Australia*.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.  
*New Guinea*.—Port Moresby.

*New Britain Mandated Territory*.—Rabaul and Kokopo.

*New Zealand*.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

*Samoa*.—Apia.

*New Caledonia*.—Noumea.

*Fiji*.—Suva.

*Hawaii*.—Honolulu.

*Society Islands*.—Papeete.

#### AFRICA

*Egypt*.—Port Said, Suez, Alexandria.

*Anglo-Egyptian Sudan*.—Port Sudan, Suakin.

*Eritrea*.—Massawa.

*French Somaliland*.—Djibouti.

*British Somaliland*.—Berbera.

*Italian Somaliland*.—Mogadiscio.

*Zanzibar*.—Zanzibar.

*Kenya*.—Mombasa.

*Tanganyika*.—Dar-es-Salaam.

*Seychelles*.—Victoria.

*Portuguese East Africa*.—Mozambique, Beira, Lourenco-Marques.

*Union of South Africa*.—East London, Port Elizabeth, Cape Town, Durban.

*Roumion*.—Saint Denis.

*Mauritius*.—Port Louis.

*Madagascar*.—Majunga, Tamatave, Diego-Suarez.

#### AMERICA

*Panama*.—Colon, Panama.

Reports had not been received in time for publication from:

*Arabia*.—Kamran.

*Dutch East Indies*.—Palembang.

*Union of Socialist Soviet Republics*.—Vladivostok.

Belated information:

Week ended May 14: *Pondicherry* and *Karikal*, nil.

#### Other epidemiological information

S. S. Taires arrived at Port Swettenham from Madras infected with cholera.

### CANADA

*Communicable diseases—Week ended June 4, 1927.*—The Canadian Ministry of Health reports cases of certain communicable diseases in six Provinces of Canada for the week ended June 4, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Total
Cerebrospinal fever.....			1				1
Influenza.....	16			2			18
Smallpox.....				16		2	18
Typhoid fever.....			272	18	2	1	293

*Communicable diseases—Ontario—May, 1927—Comparative.*—During the month of May, 1927, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	1927		1926	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	4	—	—	—
Chancroid.....	1	—	1	—
Chicken pox.....	619	—	423	—
Diphtheria.....	166	8	145	8
German measles.....	854	—	690	—
Gonorrhea.....	93	—	117	—
Influenza.....	57	37	—	30
Lethargic encephalitis.....	2	2	—	2
Measles.....	1,251	3	2,692	2
Mumps.....	194	—	157	—
Pneumonia.....	251	48	—	232
Scarlet fever.....	757	5	501	6
Smallpox.....	65	—	51	1
Syphilis.....	110	1	133	—
Tetanus.....	1	—	—	—
Tuberculosis.....	119	55	201	84
Typhoid fever.....	56	8	32	—
Whooping cough.....	180	3	321	10

*Smallpox.*—Smallpox was reported in 17 localities, the greatest number of cases, viz, 22, being reported at Toronto. At nine localities one case each was reported.

*Communicable diseases—Quebec—Week ended June 11, 1927.*—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended June 11, 1927, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Scarlet fever.....	64
Chicken pox.....	11	Tuberculosis.....	40
Diphtheria.....	66	Typhoid fever.....	157
German measles.....	14	Whooping cough.....	22
Measles.....	80		

*Typhoid fever—Montreal—January 2–June 11, 1927.*—The following table gives the cases of typhoid fever and deaths from this disease reported at Montreal, Quebec, Canada, since January 1, 1927:

Week ended—	Cases	Deaths	Week ended—	Cases	Deaths
Jan. 8, 1927.....	3	1	Apr. 2, 1927.....	649	48
Jan. 15, 1927.....	4	3	Apr. 9, 1927.....	386	40
Jan. 22, 1927.....	1	2	Apr. 16, 1927.....	175	38
Jan. 29, 1927.....	3	1	Apr. 23, 1927.....	125	43
Feb. 5, 1927.....	1	0	Apr. 30, 1927.....	105	23
Feb. 12, 1927.....	0	0	May 7, 1927.....	106	19
Feb. 19, 1927.....	1	2	May 14, 1927.....	367	16
Feb. 26, 1927.....	1	1	May 21, 1927.....	770	26
Mar. 5, 1927.....	9	1	May 28, 1927.....	353	38
Mar. 12, 1927.....	203	4	June 4, 1927.....	239	37
Mar. 19, 1927.....	353	14	June 11, 1927.....	128	37
Mar. 26, 1927.....	568	22			

## CHILE

*Vital statistics—Year 1926.*—The Chilean Government reports 159,540 births and 108,223 deaths during the year 1926, with an estimated population on December 1, 1926, of 3,982,926, making a rate per 1,000 of 40.1 for births and 27.2 for deaths. The births and deaths in the four principal cities of the Republic are given as follows:

Cities	Births		Deaths	
	Number	Rate per 1,000	Number	Rate per 1,000
Concepcion.....	3,031	42.2	2,725	37.9
Santiago.....	15,512	29.0	13,382	25.0
Valparaiso.....	6,336	34.2	5,623	30.4
Antofagasta.....	2,278	22.7	1,629	16.2

## DAHOMY

*Yellow fever—Porto-Novo—May 26, 1927.*—The occurrence of a case of yellow fever in a European was reported May 26, 1927, at Porto-Novo, Dahomey, West Africa.

## EGYPT

*Communicable diseases—Week ended May 6, 1927.*—During the week ended May 6, 1927, communicable diseases were reported in Egypt as follows:

Diseases	Cases	Deaths	Diseases	Cases	Deaths
Cerebrospinal meningitis.....	1	—	Typhoid fever.....	24	—
Influenza.....	70	—	Typhus fever.....	84	10
Smallpox.....	4	2			

## JAMAICA

*Smallpox (alastrim)—May 1–28, 1927.*—During the period May 1 to 28, 1927, 30 cases of smallpox, reported as alastrim, were notified in the island of Jamaica. Of these, two cases occurred in Kingston.

*Other communicable diseases.*—During the same period other communicable diseases were reported in the island of Jamaica as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox.....	57	27	Puerperal fever.....	—	2
Dysentery.....	4	9	Tuberculosis (pulmonary).....	27	48
Erysipelas.....	—	1	Typhoid fever.....	29	61

Population: Island, 916,620; Kingston, 62,707.

## MEXICO

*Filariasis (onchocerciasis).*—Onchocerciasis is reported in Bulletin No. 4 of the Department of Public Health of Mexico (1926) as being widespread in certain districts of that country and as causing a large number of cases of blindness. It is prevalent chiefly in Montecristo de Guerrero, Province of La Libertad, and in Chiapas. On some plantations or ranches nearly all the inhabitants are infected. In a recent survey of persons suffering from this disease there were reported 4,000 cystic tumors, 100 cases of total blindness, and 800 cases in which there was serious eye involvement. The disease is said to be prevalent also on the Pacific coast of Guatemala and of San Salvador.

## POLAND

*Campaign against rats—Warsaw—May, 1927.*—According to information dated May 18, 1927, an intensive campaign of rat extermination was ordered to be carried out at Warsaw, Poland, in May, 1927, to be followed by similar campaigns in all the districts throughout Poland. Large quantities of rat poison were prepared under direction of the city government of Warsaw, to be sold to house owners, and the directions for preparing the poison were ordered to be posted conspicuously and distributed by means of handbills. The health department of the city also organized public meetings for instructing the public in regard to the injury which might be caused by the presence of rats in the city and the best means of rat extermination. The campaign was ordered to be begun May 23 and to be effected by May 25, 1927, after which date special sanitary commissions were to be placed in control of the sanitary condition of all properties. A penalty was imposed in the form of fine or imprisonment for failure to comply with the terms of the rat-extermination campaign.

The regulations to be enforced were made to extend to owners and managers of houses and hotels, and to factories, food shops, warehouses for foodstuffs, market places, grain warehouses, flour depots, stables, and barns. Poison was ordered to be placed in all such places whether rats had or had not been observed to be present. All localities were to be thoroughly cleaned before the placing of the poison, all rubbish to be removed, and poison to remain in place until May 30, 1927.

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER**

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given:

**Reports Received During Week Ended June 24, 1927<sup>1</sup>****CHOLERA**

Place	Date	Cases	Deaths	Remarks
India				Apr. 3-16, 1927: Cases, 11,639; deaths, 3,778.
Bombay	May 1-7	1	1	
Calcutta	do	105	87	
Rangoon	do	5	4	
Siam				Apr. 24-30, 1927: Cases, 46; deaths, 35.
Do				Apr. 1-30, 1927: Cases, 394; deaths, 280.
Bangkok	Apr. 24-30	14	9	
On vessel:				
Steamship Morvada	May 6	1		At Madras. Vessel left Calcutta May 2, 1927. Was at Madras May 6, Colombo May 10, Aden May 18; arrived Suez May 23; destination, London.

**PLAGUE**

India				Apr. 3-16, 1927: Cases, 4,108; deaths, 2,828.
Bombay	May 1-7	23	17	
Madras Presidency	Apr. 17-23	6	5	
Rangoon	May 1-7	3	2	
Senegal:				
Guindol	May 11-20	50	29	Suburb of Rufisque.
Thies	do	5		District.
Tivaouane	do	21	11	Do.
Siam				Apr. 24-30, 1927: Cases, 3; deaths, 3.
Do				Apr. 1-30, 1927: Cases, 7; deaths, 6.
Straits Settlements:				
Singapore	Apr. 10-16	1	1	

**SMALLPOX**

Algeria:				
Oran	May 11-20	19		
Canada:	May 29-June 4	18		
Alberta	May 15-21	2		
Ontario:				
Do	May 29-June 4	16		May, 1927: Cases, 65. Corresponding period of 1926: Cases, 51; deaths, 1.
Hamilton	June 5-11	16		
North Bay	do	3		
Ottawa	do	4		
Saskatchewan	May 29-June 4	2		
China:				
Amoy	Apr. 17-30	3		
Antung	May 2-15	2		
Poochow	Apr. 9-30			Present.
Hong Kong	May 1-7	6	4	
Manchuria:				
Dairen	Apr. 4-24	9	2	
Shanghai	May 8-14		2	Chinese.
Tientsin	May 1-7	3		Reported by one mission hospital and British municipality.
Egypt				Apr. 30-May 6, 1927: Cases, 4; deaths, 2.
France:				
Paris	May 11-20	3	1	
Great Britain:				
England—				
Newcastle-on-Tyne	May 22-28	1		
Scotland—				
Dundee	do	3		
India				Apr. 3-16, 1927: Cases, 16,861; deaths, 3,832.
Bombay	May 1-7	73	37	
Calcutta	do	76	61	
Madras	May 8-14	4	1	
Rangoon	May 1-7	19	7	

<sup>1</sup> From medical officers of the Public Health Service, American consuls, and other sources.

# **CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

## **Reports Received During Week Ended June 24, 1927—Continued**

### **SMALLPOX—Continued**

Place	Date	Cases	Deaths	Remarks
Jamaica.....				May 1-28, 1927: Cases, 30; reported as alastrim.
Mexico:				
Tampico.....	May 21-31	1		
Portugal:				
Lisbon.....	May 15-28	4		
Siam.....				Apr. 24-30, 1927: Cases, 7; deaths, 6.
Do.....				Apr. 1-30, 1927: Cases, 38; deaths, 12.
Bangkok.....	Apr. 24-30	2	1	
Sierra Leone:				
Freetown.....	do	1		Imported.
Spain:				
Madrid.....	do		1	
Tunisia:				
Tunis.....	May 11-20	1		

### **TYPHUS FEVER**

Algeria:				
Oran.....	May 11-20	8		
Bulgaria:				
Sofia.....	May 14-20	1		
Chile:				
Valparaiso.....	May 8-14	2		
Egypt:				Apr. 30-May 6, 1927: Cases, 84; deaths, 10.
Alexandria.....	May 7-13	1		
Mexico:				
Mexico City.....	May 15-21	6		Including municipalities in Federal District.
Torreón.....	May 22-28		2	May 3-16, 1927: Cases, 5.
Palestine:				
Birtuvia.....	May 3-16	1		
Haifa.....	do	1		
Jericho.....	do	1		
Safad.....	do	1		
Tiberias.....	do	1		
Union of South Africa:				
Cape Province.....	Apr. 24-30			Outbreaks.
Natal.....	do			Do.
Orange Free State.....	do			Do.

### **YELLOW FEVER**

Dahomey:				
Porto-Novo.....	May 26	1		European.
Senegal:				
M'Bour.....	May 11-20	1	1	Do.
Tivaouane.....	do	1	1	Do.

## **Reports Received from January 1 to June 24, 1927<sup>1</sup>**

### **CHOLERA**

Place	Date	Cases	Deaths	Remarks
China:				
Canton.....	Nov. 1-30	10	3	
Chungking.....	Nov. 14-20			Present.
Do.....	Jan. 2-Mar. 19			Do.
Tsingtao.....	Nov. 14-Dec. 11			Do.
Chosen.....	Sept. 1-Oct. 31	252	150	
French Settlements in India:				
Do.....	Aug. 29-Dec. 18	131	97	
Do.....	Jan. 2-Mar. 19	25	15	

<sup>1</sup> From medical officers of the Public Health Service, American consuls, and other sources.

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued****Reports Received from January 1 to June 24, 1927—Continued****CHOLERA—Continued**

Place	Date	Cases	Deaths	Remarks
India.....	Oct. 10-Jan. 1.....			Cases, 20,298; deaths, 13,507.
Do.....	Jan. 2-Mar. 26.....			Cases, 47,336; deaths, 24,967.
Bombay.....	Jan. 9-May 7.....	13	6	
Calcutta.....	Oct. 31-Jan. 1.....	385	313	
Do.....	Jan. 2-May 7.....	1,399	1,073	
Madras.....	Dec. 26-Jan. 1.....	2	2	
Do.....	Jan. 2-Apr. 16.....	13	10	
Rangoon.....	Nov. 21-Jan. 1.....	11	7	
Do.....	Jan. 2-May 7.....	75	62	
Indo-China.....	July 1-Dec. 31.....			Cases, 8,508.
Do.....	Jan. 1-Mar. 31.....	999	2	
Saigon.....	Oct. 31-Nov. 13.....	22		
Do.....	Mar. 27-Apr. 29.....	96	81	Including area of 100 surrounding kilometers.
Japan:				
Hiogo.....	Nov. 14-20.....	3		
Philippine Islands:				
Manila.....	Oct. 31-Nov. 6.....	1		
Russia.....	Aug. 1-Sept. 30.....	8		
Siam.....	Apr. 1-Jan. 1.....			Cases, 7,847; deaths, 5,164.
Do.....	Jan. 2-Apr. 30.....			Cases, 1,002; deaths, 706.
Bangkok.....	Oct. 31-Jan. 1.....	16	5	
Do.....	Jan. 9-Apr. 30.....	299	139	
Straits Settlements.....	July 25-Oct. 16.....		60	
Singapore.....	Nov. 21-Jan. 1.....	14	8	
Do.....	Feb. 6-12.....	1		
On vessel:				
Steamship Morvada.....	May 6.....	1		At Madras.

**PLAGUE**

Algeria:				
Algiers.....	Reported Nov. 16.....	1		
Bona.....	Jan. 11-19.....	3	2	
Oran.....	Nov. 21-Dec. 10.....	32	22	
Tarafaraoui.....	Nov. 1-Dec. 9.....	10	9	Near Oran.
Angola:				
Benguela district.....	Oct. 1-Dec. 31.....	17	10	
Do.....	Jan. 19-Mar. 15.....	6		At Cavaco.
Cuanza Norte district.....	Dec. 1-31.....	18	10	
Mossamedes district.....	Dec. 16-31.....	10		
Do.....	Jan. 19-Feb. 28.....	8		
Port Alexander.....	Feb. 9-Mar. 15.....	2	2	
Argentina.....	Jan. 9-15.....	5		
Azores:				
Ponta Delgada.....	Apr. 17-23.....	1		
St. Michaels Island—				
Furnas.....	Nov. 3-17.....	4	1	27 miles distant from port.
Brazil:				
Porto Alegre.....	Jan. 1-31.....	4	2	
Rio de Janeiro.....	Nov. 28-Dec. 4.....	2	2	
Do.....	Dec. 26-Jan. 1.....	1	1	On vessel in harbor.
Do.....	Jan. 2-8.....	1		
Sao Paulo.....	Nov. 1-14.....	1	1	
British East Africa:				
Kenya—				
Kisumu.....	Jan. 16-22.....	1	1	
Mombasa.....	Feb. 27-Mar. 19.....	7	7	
Tanganyika Territory.....	Nov. 21-Dec. 18.....		12	
Do.....	Mar. 27-Apr. 9.....		18	
Uganda.....	Sept. 1-Oct. 31.....	162	152	
Canary Islands:				
Atarfe.....	Dec. 20.....	1	1	Vicinity of Las Palmas.
Las Palmas.....	Jan. 8-Feb. 12.....	2		
San Miguel.....	do.....	1		Vicinity of Santa Cruz de Tenerife.
Celebes:				
Makassar.....	Dec. 22.....			Outbreak.
Ceylon:				
Colombo.....	Nov. 14-Dec. 11.....	3	1	2 plague rodents.
Do.....	Jan. 2-Apr. 30.....	59	34	14 plague rodents.
China:				
Mongolia.....	Reported Dec. 21.....	500		
Nanking.....	Oct. 31-Dec. 18.....			Present.
Do.....	Feb. 6-Mar. 5.....			Do.

# **CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**Reports Received from January 1 to June 24, 1927—Continued**

## **PLAGUE—Continued**

Place	Date	Cases	Deaths	Remarks
Ecuador:				
Guayaquil.....	Nov. 1-Dec. 31.....	26	8	Rats taken, 50,615; found infected, 184.
Do.....	Jan. 1-Apr. 30.....	87	24	Rats taken, 94,582; found infected, 311.
Egypt.....	Jan. 1-Dec. 9.....			Cases 149.
Do.....	Jan. 1-Apr. 22.....			Cases, 30.
Alexandria.....	Nov. 19-Dec. 2.....	2		
Do.....	Apr. 2-15.....	3	1	
Beni Suef Province.....	Apr. 30-May 7.....	5	1	
Charkia Province.....	Jan. 5.....	1	1	
Gharbia Province.....	Jan. 4.....	1	1	At Zagazig (Tel el Kebir).
Do.....	Apr. 29.....	1		
Guerga district.....	Apr. 5-May 7.....	16	8	
Kafr el Sheikh.....	Dec. 3-9.....	2		
Marsa Matrah.....	Dec. 23-29.....	10		
Do.....	Jan. 27.....	1		
Port Said.....	Mar. 12-May 7.....	3	2	
Tanta district.....	Nov. 19-Dec. 20.....	3		
Greece:				
Athens and Piræus.....	Nov. 1-Dec. 31.....	19	5	
Do.....	Jan. 1-Apr. 30.....	27	3	
Patras.....	Nov. 28-Dec. 4.....		1	
Prævi.....	Nov. 27.....	1	1	
India.....	Oct. 10-Jan. 1.....			Province of Drama-Kavalla.
Do.....	Jan. 2-Apr. 6.....			Cases, 16,162; deaths, 9,905.
Bombay.....	Nov. 21-27.....	1	1	Cases, 30,548; deaths, 20,638.
Do.....	Jan. 16-May 7.....	101	85	
Calcutta.....	Apr. 17-30.....	2	1	
Madras.....	Jan. 31-Jan. 1.....	581	324	
Do.....	Jan. 2-Apr. 23.....	1,045	612	
Rangoon.....	Nov. 14-Dec. 25.....	11	9	
Do.....	Jan. 2-May 7.....	66	61	Rats found plague infected, 12.
Indo-China.....	July 1-Dec. 31.....			Cases, 52; deaths, 34.
Do.....	Jan. 1-Mar. 31.....	19		
Province—				
Cambodia.....	July 1-Dec. 31.....	10	10	
Cochin-China.....	do.....	14	9	
Kwang-Chow-Wan.....	do.....	10		
Iraq:				
Baghdad.....	Jan. 23-Mar. 12.....	4	1	
Java:				
Batavia.....	Nov. 7-Jan. 1.....	91	90	Province.
Do.....	Jan. 2-Apr. 30.....	283	275	Do.
East Java and Madura.....	Oct. 24-Jan. 1.....	19	17	
Do.....	Jan. 2-Apr. 16.....	42	42	
Proboling district.....	Jan. 7.....			Outbreak at Ngadas.
Semarang.....	do.....			Seaport. Present.
Madagascar:				
Province—				
Ambositra.....	Dec. 16-31.....	10	10	
Do.....	Jan. 1-Mar. 15.....	65	63	
Analalava.....	Oct. 16-31.....	1	1	
Antisirabe.....	Dec. 16-21.....	2	2	
Do.....	Jan. 1-Mar. 15.....	82	82	
Diego-Suarez.....	Jan. 1-31.....	7	7	
Itasy.....	Oct. 16-Dec. 31.....	30	39	
Do.....	Jan. 1-Mar. 15.....	170	156	
Maevatanana.....	Oct. 16-31.....	10	10	
Majunga.....	do.....	3	1	
Moramanga.....	Oct. 16-Dec. 31.....	92	67	
Do.....	Jan. 1-Mar. 15.....	69	61	
Tamatave.....	Oct. 16-Dec. 31.....	107	60	
Tananarive.....	do.....			Cases, 533; deaths, 497.
Do.....	Jan. 1-Mar. 15.....	500	479	
Town—				
Tamatave.....	Nov. 16-30.....	2		
Tananarive.....	Oct. 16-Dec. 31.....	48	47	
Do.....	Jan. 1-Feb. 15.....	19	18	
Mauritius:				
Plaines Wilhems.....	Oct. 1-Nov. 30.....	2	2	
Pamplemousses.....	Dec. 1-31.....	3	3	
Port Louis.....	Oct. 1-Dec. 31.....	39	35	
Do.....	Jan. 1-Feb. 28.....	6	4	
Nigeria.....	Aug. 1-Dec. 21.....	1,066	967	
Do.....	Jan. 1-Feb. 23.....	54	54	

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

Reports Received from January 1 to June 24, 1927—Continued

**PLAGUE—Continued**

Place	Date	Cases	Deaths	Remarks
Peru.....	Nov. 1-Dec. 31.....	92	23	Cases, 90; deaths, 26.
Do.....	Jan. 1-Mar. 31.....	92	23	
Department—				
Ancash.....	Dec. 1-31.....	6	6	
Do.....	Jan. 1-Mar. 31.....	3		
Cajamarca.....	Dec. 1-31.....	36	6	
Callao.....	Mar. 1-31.....	1	1	
Ica.....				
Chincha.....	Nov. 1-30.....	1		
Lambayeque.....	Feb. 1-28.....	6	2	
Chiclayo.....	Nov. 1-30.....	3		
Do.....	Jan. 1-31.....	2		
Libertad.....	Dec. 1-31.....	2		
Do.....	Jan. 1-Feb. 28.....	6		
Lima.....	Nov. 1-Dec. 31.....	42	14	
Do.....	Jan. 1-Mar. 31.....	75	20	
Piura.....	Feb. 1-28.....	1		
Portugal:				
Lisbon.....	Nov. 23-26.....	3	2	
Russia.....	May 1-June 30.....	44		
Do.....	July 1-Dec. 31.....	98		
Senegal.....	July 1-31.....	178	162	
Dakar.....	Apr. 1-10.....	10	7	
Diourbel.....	Nov. 20-30.....	12	1	
Guindol.....	May 11-20.....	50	29	
Thies.....	Mar. 28-May 20.....	24	16	
Tivaouane.....	Dec. 19-25.....	6	2	In interior.
Do.....	Mar. 21-May 20.....	70	34	Do.
Siam.....	Apr. 1-Jan. 1.....			Cases, 30; deaths, 22.
Do.....	Jan. 16-Apr. 30.....			Cases, 19; deaths, 16.
Bangkok.....	Feb. 27-Apr. 9.....	3	3	
Straits Settlements:				
Singapore.....	Apr. 2-16.....	4	1	
Syria:				
Beirut.....	Nov. 11-Dec. 20.....	4		
Do.....	Feb. 1-10.....	1		
Tunisia.....	Dec. 1-31.....			Cases, 43.
Do.....	Jan. 12-Apr. 30.....			Cases, 69.
Acheche district.....	Feb. 11-14.....	14	14	Pneumonia.
Bousse.....	Jan. 12-26.....	8		
Djeneniana.....	Feb. 11-14.....	8		
Kairouan.....	do.....	3		
Mahares.....	do.....	15		
Sfax.....	Oct. 1-Dec. 31.....	304	128	
Turkey:				
Constantinople.....	Dec. 15-25.....	1		
Do.....	Apr. 3-9.....	1		
Union of South Africa:				
Cape Province—				
Cradock district.....	Jan. 2-Mar. 26.....	4	2	
De Aar district.....	Nov. 21-27.....	1		Native.
Glen Gray district.....	Jan. 31-Feb. 12.....	8	8	
Hanover district.....	Nov. 14-Jan. 1.....	3	2	
Do.....	Jan. 2-Apr. 2.....	3	2	
Middleburg district.....	Dec. 5-11.....	1	1	Do.
Richmond district.....	Mar. 6-12.....	3	2	
Tarkastad district.....	Mar. 27-Apr. 2.....	3	1	
Orange Free State.....	Dec. 5-11.....			Cases, 12; deaths, 2.
Bloomfontein district.....	Feb. 27-Mar. 19.....	3	3	
Bothaville district.....	Dec. 5-18.....	2	1	
Hoopstad district.....	Nov. 7-13.....	1	1	Native.
Do.....	Dec. 5-25.....	2	1	Do.
Do.....	Jan. 2-Feb. 12.....	4		
Rouville district.....	Apr. 3-16.....	2	2	
Vredefort district.....	Dec. 19-25.....	10	5	
Do.....	Feb. 6-12.....	2	1	
On vessel:				
S. S. Armadale Castle.....	Apr. 4.....	1	1	At Cape Town.
S. S. Leconte de Lisle.....	Feb. 21-23.....	2		At Tamatave, Madagascar.

# **CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**Reports Received from January 1 to June 24, 1927—Continued**

## **SMALLPOX**

Place	Date	Cases	Deaths	Remarks
Algeria.....	Sept. 21-Dec. 31.....			Cases, 797.
Do.....	Jan. 1-Apr. 30.....			Cases, 729.
Algiers.....	Dec. 11-31.....	4		
Do.....	Jan. 1-Apr. 10.....	14		
Oran.....	Mar. 21-May 20.....	70		
Angola.....	Oct. 1-15.....			Present in Congo district.
Congo.....	Feb. 2-15.....	1		Present.
Cuanza Norte.....	Nov. 1-15.....			
Do.....	Mar. 1-15.....	2		
Malange.....	Feb. 2-15.....	2		
Arabia:				
Aden.....	Dec. 12-18.....	1		Imported.
Do.....	Apr. 3-May 7.....	1	1	
Belgium.....	Oct. 1-10.....	1		
Brazil:				
Bahia.....	Oct. 30-Dec. 18.....	12	8	
Para.....	Oct. 31-Nov. 6.....		1	
Do.....	Feb. 5-12.....		1	
Pernambuco.....	Oct. 17-Dec. 25.....	58	4	
Rio de Janeiro.....	Year 1926.....			Cases, 4,033; deaths, 2,110.
Do.....	Jan. 2-Apr. 30.....	79	24	
Sao Paulo.....	Aug. 23-Dec. 5.....	24	18	
British East Africa:				
Kenya:				
Nairobi.....	Dec. 1-31.....	15	5	
Tanganyika Territory.....	Oct. 31-Nov. 20.....	2		
Do.....	Jan. 2-Apr. 9.....	24	35	
Zanzibar.....	Oct. 1-31.....	23	12	
Do.....	Jan. 1-Feb. 28.....	31	14	
British South Africa:				
Northern Rhodesia.....	Nov. 27-Dec. 3.....			Cases, 200. In natives.
Do.....	Feb. 26-Apr. 22.....	124	4	
Bulgaria.....	Nov. 1-30.....	1		
Canada:				
Do.....	Dec. 5-Jan. 1.....			Cases, 155.
Alberta.....	Jan. 2-May 21.....			Cases, 678.
Do.....	Dec. 5-Jan. 1.....	132		
Do.....	Jan. 2-May 21.....	254		
Calgary.....	Nov. 28-Dec. 25.....	12		
Do.....	Jan. 2-May 14.....	39	1	
Edmonton.....	Dec. 1-31.....	4		
Do.....	Jan. 1-Mar. 31.....	18		
British Columbia—				
Vancouver.....	Jan. 31-May 22.....	12		
Manitoba.....	Dec. 5-Jan. 1.....	9		
Do.....	Jan. 2-May 28.....	30		
Winnipeg.....	Dec. 10-25.....	1		
Do.....	Jan. 2-May 28.....	15		
New Brunswick.....	Feb. 13-26.....	2		
Ontario.....	Dec. 5-Jan. 1.....	96		
Do.....	Jan. 2-May 28.....	343		
Hamilton.....	June 5-11.....	16		
Kingston.....	Jan. 1-Feb. 19.....	3		
North Bay.....	June 5-11.....	3		
Ottawa.....	Dec. 12-31.....	5		
Do.....	Jan. 9-June 11.....	16		
Toronto.....	Dec. 14-25.....	14		
Do.....	Jan. 1-June 4.....	93	1	
Quebec.....	May 22-28.....	2		
Saskatchewan.....	Dec. 5-Jan. 1.....	18		
Do.....	Jan. 2-May 28.....	77		
Regina.....	Jan. 16-22.....	1		
Chile:				
Concepcion.....	Dec. 26-Jan. 1.....		5	
Iquique.....	Mar. 1-15.....	2		
China:				
Amoy.....	Jan. 1-Apr. 30.....	14		
Antung.....	Mar. 21-May 15.....	3		
Canton.....	Nov. 1-Dec. 31.....	6		
Chefoo.....	Jan. 28-Apr. 9.....			Present.
Chungking.....	Nov. 7-Dec. 25.....			Do.
Do.....	Jan. 2-Mar. 26.....			Do.
Foochow.....	Nov. 7-Dec. 25.....			Do.
Do.....	Feb. 27-Apr. 30.....			Do.
Hankow.....	Nov. 6-30.....			Do.
Hong Kong.....	Jan. 23-May 7.....	146	107	

# **CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**Reports Received from January 1 to June 24, 1927—Continued**

## **SMALLPOX—Continued**

Place	Date	Cases	Deaths	Remarks
China—Continued.				
Manchuria—				
An-shan.....	Mar. 21-Apr. 16.....	4		
Dairen.....	Feb. 20-Apr. 24.....	32	9	
Fushun.....	Apr. 11-24.....	3		
Harbin.....	Dec. 16-31.....	3		
Do.....	Feb. 7-13.....	1		
Kai-Yuan.....	Mar. 20-27.....	2		
Mukden.....	Dec. 5-11.....	1		
Do.....	Apr. 3-24.....	2		
Tiehling.....	Apr. 3-9.....	1		
Nanking.....	Dec. 12-25.....			Do.
Do.....	Jan. 2-Mar. 5.....			Do.
Shanghai.....	Dec. 12-18.....		1	
Do.....	Jan. 20-May 14.....		5	
Swatow.....	Nov. 21-27.....			Do.
Do.....	Mar. 27-Apr. 30.....			Do.
Tientsin.....	Jan. 16-Apr. 2.....	27		
Do.....	Apr. 3-May 7.....	13	1	
Chosen.....	Aug. 1-Nov. 30.....	53	19	
Do.....	Jan. 1-31.....	98	21	
Seoul.....	Nov. 1-30.....	2		
Egypt.....	Apr. 30-May 6.....	4	2	
Alexandria.....	Jan. 8-Apr. 15.....	3		
Cairo.....	June 11-Aug. 26.....	27	4	
Estonia.....	Oct. 1-30.....	2		
France.....	Sept. 1-Dec. 31.....	203		
Do.....	Jan. 1-Mar. 31.....	170		
Paris.....	Dec. 1-31.....	10	3	
Do.....	Jan. 1-May 20.....	44	8	
French Guinea.....	Apr. 21-30.....	1		
Kissidougou.....	Feb. 19.....			Present.
French Settlements in India.....	Aug. 29-Jan. 1.....	127	127	
Do.....	Jan. 2-Mar. 19.....	126	90	
French Sudan:				
Kayes.....	Feb. 19.....			Do.
Kita.....	Mar. 28-Apr. 3.....			Do.
Germany:				
Stuttgart.....	Nov. 28-Dec. 4.....	7		
Gold Coast.....	Aug. 1-Nov. 30.....	59	14	
Do.....	Jan. 1-31.....	5	1	
Great Britain:				
England and Wales.....	Nov. 14-Jan. 1.....			Cases, 2,262.
Do.....	Jan. 2-May 21.....			Cases, 8,401.
Birmingham.....	Mar. 13-19.....	5		
Bradford.....	Jan. 9-Apr. 30.....	7		
Cardiff.....	Feb. 13-19.....	1		
Hull.....	May 1-7.....	1		
Leeds.....	Mar. 27-Apr. 16.....	2		
London.....	Apr. 28-May 14.....	11	5	
Manchester.....	May 15-21.....	1		
Monmouthshire.....	Feb. 25.....	23		
Newcastle-on-Tyne.....	Dec. 5-13.....	2		
Do.....	Jan. 2-May 28.....	30		
Normanton.....	Dec. 30.....	1		9 miles from Leeds.
Sheffield.....	Nov. 28-Jan. 1.....	60		
Do.....	Jan. 2-May 23.....	568	1	
Stoke on Trent.....	May 1-7.....	1		
Wakefield.....	Jan. 30-Feb. 2.....	2		
Scotland—				
Dundee.....	Mar. 31-May 28.....	130		
Greece.....	Nov. 1-Dec. 31.....	25		
Athens.....	Dec. 1-31.....	14	2	
Do.....	Mar. 1-Apr. 30.....	16		Including Piræus.
Saloniki.....	Mar. 8-14.....		1	
Guatemala:				
Guatemala City.....	Nov. 1-Dec. 31.....		15	
Do.....	Jan. 1-Apr. 30.....		87	
India.....	Oct. 10-Jan. 1.....			Cases, 22,946; deaths, 6,008.
Do.....	Jan. 2-Apr. 16.....			Cases, 93,723; deaths, 23,643.
Bombay.....	Nov. 7-Jan. 1.....	37	20	
Do.....	Jan. 2-May 7.....	950	508	
Calcutta.....	Oct. 31-Jan. 1.....	449	311	
Do.....	Jan. 2-May 7.....	2,952	2,207	
Karachi.....	Dec. 19-25.....	1	1	
Do.....	Jan. 2-May 7.....	44	26	

# **CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

## **Reports Received from January 1 to June 24, 1927—Continued**

### **SMALLPOX—Continued**

Place	Date	Cases	Deaths	Remarks
India—Continued.				
Madras.....	Nov. 21-Jan. 1.....	32	2	
Do.....	Jan. 2-May 14.....	318	14	
Rangoon.....	Nov. 23-Jan. 1.....	2	2	
Do.....	Jan. 2-May 7.....	486	113	
Indo-China:				
Saigon.....	Dec. 26-Jan. 1.....	3		
Do.....	Feb. 6-Apr. 29.....	3		
Iraq:				
Baghdad.....	Oct. 31-Dec. 4.....	7	4	
Do.....	Jan. 23-Apr. 2.....	7	1	
Basra.....	Nov. 7-13.....	2	1	
Do.....	Mar. 26-26.....	1		
Italy.....	Aug. 29-Jan. 1.....	28		
Do.....	Jan. 2-Apr. 9.....	7		
Genoa.....	Dec. 30-31.....	1		
Do.....	Jan. 1-10.....	2		
Jamaica.....	Nov. 26-Jan. 1.....	37		Reported as alastrim.
Do.....	Jan. 2-May 28.....	158		Do.
Japan.....	Oct. 24-Jan. 1.....	27		
Do.....	Jan. 2-Apr. 2.....	95		
Kobe.....	Nov. 14-20.....	1		
Do.....	Jan. 23-Apr. 2.....	3		
Sasebo.....	May 8-14.....	3		
Yokohama.....	Nov. 27-Dec. 3.....	2		
Do.....	Mar. 26-May 6.....	4	1	
Java:				
Batavia.....	Nov. 29-Dec. 3.....	2		Province.
Do.....	Mar. 13-Apr. 30.....	2		
East Java and Madura.....	Oct. 24-Dec. 25.....	11	1	
Do.....	Jan. 2-Apr. 16.....	6	3	
Lithuania.....	Nov. 1-30.....	2		
Luxemburg.....	Nov. 1-Dec. 31.....	2		
Mexico.....	July 1-Dec. 31.....		799	
Do.....	Jan. 1-31.....		139	
Chihuahua.....	Dec. 31.....			Several cases; mild.
Do.....	Jan. 31-Feb. 6.....			Present.
Ciudad Camargo.....	May 21.....	4		
Ciudad Juarez.....	Dec. 14-27.....		2	
Manzanillo.....	Mar. 5-Apr. 25.....	7	5	
Mazatlan.....	Feb. 14-Apr. 17.....		3	
Mexico City.....	Nov. 23-Dec. 25.....	6		Including municipalities in Federal District.
Do.....	Dec. 23-Apr. 30.....	9		Do.
Nuevo Leon State—				
Cerralvo.....	Mar. 11.....			Epidemic.
Montemorelos.....	Feb. 24.....			Reported present.
Monterey.....	Feb. 24-Mar. 20.....	64	2	Other cases stated to exist.
Parral.....	Jan. 31-Feb. 6.....			Cases, 25. Unofficially reported.
Piedras Negras district.....	Feb. 25.....	68		At Nueva Rosita.
Saltillo.....	Feb. 6-Apr. 9.....		2	
San Luis Potosi.....	Nov. 12-Dec. 18.....		3	
Do.....	Jan. 9-May 28.....		30	
San Miguel.....	May 21.....	36		
Tampico.....	Jan. 21-31.....	1		
Do.....	May 11-31.....	1	2	
Torreon.....	Nov. 28-Jan. 1.....		12	
Do.....	Jan. 2-Mar. 19.....		13	
Victoria.....	Feb. 24.....			Present.
Morocco.....	Jan. 1-Mar. 31.....	269		
Netherlands East Indies.....	Dec. 14.....			Island of Borneo; epidemic in 2 villages.
Do.....	Feb. 7-28.....			Epidemic in 6 localities.
Nigeria.....	Aug.-Dec. 31.....	165	40	
Do.....	Jan. 1-Feb. 28.....	395	71	
Persia:				
Teheran.....	Nov. 22-Dec. 23.....		5	
Do.....	Dec. 24-Feb. 23.....		5	
Peru:				
Arequipa.....	Dec. 1-31.....		1	
Do.....	Jan. 1-31.....		1	
Laredo.....	Dec. 1.....			Severe outbreak; vicinity of Trujillo.
Poland.....	Oct. 11-Dec. 31.....			Cases, 32; deaths, 3.
Do.....	Jan. 1-Apr. 9.....			Cases, 13; deaths, 1.

# **CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**Reports Received from January 1 to June 24, 1927—Continued**

## **SMALLPOX—Continued**

Place	Date	Cases	Deaths	Remarks
Portugal:				
Lisbon.....	Nov. 22-Jan. 1.....	43	4	
Do.....	Jan. 2-May 28.....	48		
Rumania.....	Jan. 1-Sept. 30.....	7	1	
Russia.....	May 1-June 30.....	705		
Do.....	July 1-Sept. 30.....	884		
Do.....	Nov. 1-Dec. 31.....	1,815		
Senegal:				
Dakar.....	Jan. 9-Apr. 3.....	4		
Gueudel.....	Apr. 11-17.....	1		
Kebener.....	do.....	1		
Niger Colony.....	Apr. 1-May 11.....		95	
Onakam.....	Mar. 20-27.....	4		Vicinity of Dakar.
Tiyaouane.....	Apr. 11-17.....	2		
Siam.....	Apr. 1-Jan. 1.....			Cases, 711; deaths, 265.
Do.....	Jan. 2-Apr. 30.....			Cases, 122; deaths, 53.
Bangkok.....	Oct. 31-Jan. 1.....	28	10	
Do.....	Jan. 2-Apr. 30.....	56	35	
Sierra Leone:				
Freetown.....	Apr. 24-30.....	1		
Makeni.....	Feb. 22-28.....	3		
Nanawa.....	Dec. 1-15.....	1		Pendembu district.
Spain.....	July 1-Oct. 31.....		15	
Madrid.....	Apr. 24-30.....		1	
Valencia.....	Feb. 8-May 14.....	16		
Straits Settlements:				
Singapore.....	Oct. 31-Jan. 1.....	12	2	
Do.....	Jan. 2-Apr. 2.....	5	4	
Sumatra:				
Medan.....	Feb. 20-26.....	1		
Tunisia.....	Oct. 1-Dec. 31.....	9		
Do.....	Jan. 1-Apr. 20.....	26		
Tunis.....	Jan. 1-May 20.....	4		
Turkey:				
Constantinople.....	Feb. 1-7.....		1	
Union of South Africa:				
Cape Province—				
Albany district.....	Jan. 23-29.....			Outbreaks.
Caledon district.....	Dec. 5-11.....			Do.
Steynsburg district.....	do.....			Do.
Stutterheim district.....	Nov. 21-27.....			Do.
Wodehouse district.....	Jan. 30-Feb. 12.....			Do.
Natal—				
Durban district.....	Nov. 7-27.....	9		Including Durban municipality.
				Total from date of outbreak:
				Cases, 62; deaths, 16.
Orange Free State.....	Nov. 14-27.....			Outbreaks.
Bothaville district.....	Nov. 21-27.....			Do.
Transvaal.....	Nov. 7-20.....	2		Europeans.
Bethel district.....	Jan. 23-29.....			Outbreaks.
Johannesburg.....	Nov. 14-20.....	1		
Venezuela:				
Maracaibo.....	Mar. 8-14.....		2	
Yugoslavia.....	Nov. 1-Dec. 31.....	4	1	
Do.....	Jan. 1-31.....	3		

## **TYPHUS FEVER**

Algeria.....	Sept. 21-Dec. 20.....	59	2	
Do.....	Jan. 1-Apr. 20.....			Cases, 424; deaths, 14.
Algiers.....	Feb. 1-Apr. 30.....	62	6	
Oran.....	Mar. 21-May 20.....	27		
Angola:				
Benguela district.....	Feb. 16-28.....	1		
Argentina:				
Rosario.....	Dec. 1-31.....		1	
Do.....	Jan. 25-May 7.....		6	
Bulgaria.....	July 1-Dec. 31.....	39	5	
Do.....	Jan. 1-Feb. 28.....	12	5	
Sofia.....	Apr. 16-May 20.....	3	1	
Chile:				
Antofagasta.....	Apr. 24-May 7.....	2		
Chillan.....	Jan. 1-31.....	4	3	
Concepcion.....	Sept. 15-Nov. 15.....	1		
Do.....	Jan. 23-29.....		1	
Iquique.....	Apr. 3-9.....		1	

# **CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**Reports Received from January 1 to June 24, 1927—Continued**

## **TYPHUS FEVER—Continued**

Place	Date	Cases	Deaths	Remarks
<b>Chile—Continued.</b>				
Lebu.....	Sept. 15–Nov. 15..	6	2	
Linares.....	do.....	2	—	
Los Andes.....	do.....	8	—	
Santiago.....	Sept. 15–Dec. 31..	25	2	
Do.....	Feb. 1–28.....	3	—	
Valparaiso.....	Sept. 15–Dec. 25..	10	—	
Do.....	Jan. 2–May 14.....	8	2	
<b>China:</b>				
Antung.....	Nov. 22–Dec. 5.....	4	—	
Chefoo.....	Oct. 24–Nov. 6.....	—	—	Present.
Chungking.....	Dec. 25–31.....	—	—	Do.
Do.....	Feb. 27–Mar. 12.....	—	—	Do.
Manchuria—				
Harbin.....	Mar. 28–Apr. 17.....	2	—	
Chosen.....	Aug. 4–Dec. 31.....	54	5	
Do.....	Jan. 1–31.....	65	10	
Chemulpo.....	Mar. 1–31.....	5	—	
Seoul.....	Nov. 1–30.....	1	—	
Do.....	Jan. 1–Mar. 31.....	10	2	
Czechoslovakia.....	Oct. 1–Dec. 31.....	10	—	
Do.....	Jan. 1–Mar. 31.....	83	3	
Egypt.....	Apr. 2–May 6.....	129	17	
Alexandria.....	Dec. 3–9.....	—	1	
Do.....	Jan. 22–May 13.....	10	4	
Cairo.....	Oct. 29–Nov. 4.....	1	1	
Estonia.....	Dec. 1–31.....	1	—	
Do.....	Jan. 1–Mar. 31.....	14	—	
France.....	Nov. 1–30.....	1	—	
Do.....	Mar. 1–31.....	5	—	
Gold Coast.....	Sept. 1–30.....	1	1	
Greece.....	Nov. 1–30.....	—	—	Cases, 12.
Athens.....	Nov. 1–Dec. 31.....	19	2	
Do.....	Feb. 1–Apr. 30.....	22	4	
Drama.....	Dec. 1–31.....	2	—	
Kavalla.....	do.....	2	—	
Patras.....	Jan. 23–29.....	—	1	
Ravokan.....	Dec. 1–31.....	1	—	
Saloniki.....	Jan. 25–31.....	1	—	
Indo-China:				
Tonkin.....	Aug. 1–31.....	2	—	
<b>Iraq:</b>				
Baghdad.....	Mar. 6–19.....	2	2	
<b>Ireland:</b>				
Clare County—				
Tulla district.....	Jan. 9–15.....	1	—	Suspect.
Donegal County—				
Letterkenny.....	Mar. 27–May 7.....	7	—	Rural district
Milford.....	Mar. 27–Apr. 3.....	3	—	
Dublin district.....	May 1–7.....	1	—	
<b>Italy.....</b>	Aug. 29–Sept. 23.....	3	—	
Do.....	Jan. 16–Apr. 9.....	16	—	
<b>Japan.....</b>	Jan. 2–29.....	—	—	Cases, 2.
Tokyo prefecture.....	Dec. 5–25.....	9	—	
Tokyo City.....	do.....	5	1	
Latvia.....	Jan. 1–Mar. 31.....	3	—	
Lithuania.....	Sept. 1–Dec. 31.....	41	4	
Do.....	Jan. 1–31.....	24	—	
<b>Mexico.....</b>	July 1–Dec. 31.....	—	—	Deaths, 604.
Do.....	Jan. 1–31.....	—	—	Deaths, 35.
Aguascalientes.....	Jan. 9–Feb. 5.....	2	—	
Durango.....	Jan. 1–Apr. 30.....	—	2	
Guadalajara.....	Jan. 25–31.....	—	1	
Mexico City.....	Dec. 5–11.....	3	—	Including municipalities in Federal District.
Do.....	Jan. 2–May 21.....	109	—	Do.
Parral.....	Jan. 30–Feb. 5.....	1	—	
Torreón.....	May 22–28.....	—	2	
<b>Morocco.....</b>	Jan. 1–Mar. 31.....	499	—	
Marrakech.....	Apr. 9.....	—	—	Present.
Mogador.....	do.....	—	—	Do.
<b>Nigeria.....</b>	Sept. 1–30.....	1	—	
<b>Palestine.....</b>	Apr. 12–May 16.....	11	—	
Acre.....	Dec. 29–Jan. 3.....	1	—	
Beisan.....	Dec. 21–27.....	1	—	
Birtuvia.....	May 3–16.....	1	—	
Haifa.....	Nov. 23–Dec. 13.....	5	—	
Do.....	Dec. 28–May 16.....	8	—	

# **CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**Reports Received from January 1 to June 24, 1927—Continued**

## **TYPHUS FEVER—Continued**

Place	Date	Cases	Deaths	Remarks
<b>Palestine—Continued.</b>				
Jaffa	Nov. 23-Dec. 27	7		
Do.	Jan. 11-Feb. 21	3		
Jericho	May 3-16	1		
Majdal	Dec. 28-Jan. 3	1		
Do.	Apr. 5-11	1		
Nazareth	Nov. 16-Jan. 3	12		
Do.	Mar. 1-7	1		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Do.	May 3-16	1		
Tiberias	do	1		
<b>Peru:</b>				
Arequipa	Year, 1926		9	District.
Lima	Jan. 1-31		1	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do.	Jan. 1-Apr. 9			Cases, 1,379; deaths, 113.
<b>Portugal:</b>				
Lisbon	May 1-7	1		
Rumania	Aug. 1-Nov. 30	255	11	
Do.	Jan. 1-Mar. 31	1,385	129	
Russia	May 1-June 30	6,043		
Do.	July 1-Aug. 31	3,060		
Do.	Nov. 1-Dec. 31	4,609		
Spain	July 1-Sept. 30		4	
Seville	Mar. 16-22		1	
<b>Syria:</b>				
Aleppo	Mar. 13-19	1		
Tunisia	Oct. 1-Dec. 27	30		
Do.	Jan. 1-Apr. 20	198		
Tunis	Jan. 21-Apr. 30	11		
<b>Turkey:</b>				
Constantinople	Dec. 12-25	3		
Do.	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do.	Jan. 1-Apr. 30	51	4	
Clydesdale	Mar. 6-12			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Zumbu district	Apr. 10-16			Outbreaks.
Xalanga district	Mar. 20-Apr. 2			Do.
Natal	Oct. 1-31	1		
Do.	Jan. 1-31	6		
Do.	Mar. 27-Apr. 30			Do.
Orange Free State	Oct. 1-Dec. 31	31	2	
Do.	Jan. 1-Mar. 31	33	9	
Do.	Apr. 24-30			Do.
Transvaal	Oct. 1-31	1		
Do.	Jan. 1-Mar. 31	4		Native.
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do.	Jan. 1-Apr. 30	103	9	

## **YELLOW FEVER**

<b>Dahomey:</b>				
Porto-Novo	May 26	1		In European.
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	5	
Do.	Jan. 1-31	17	7	
Nigeria	Sept. 1-Nov. 30	4	3	
Do.	Jan. 1-31	1	1	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do.	Jan. 1-20	1	1	At N'Bake.
Guineo	Dec. 7	1	1	
M'Bour	May 11-20	1	1	In European.
Rufisque	Nov. 27-Dec. 29	2	1	Do.
Do.	Jan. 2-8	3	3	
Tivaouane	May 11-20	1	1	Do.
<b>Togoland:</b>				
Lome	May 7-8	2	2	Europeans.
Upper Volta:				
Gaoua district	Oct. 25	2		